

FEATURES

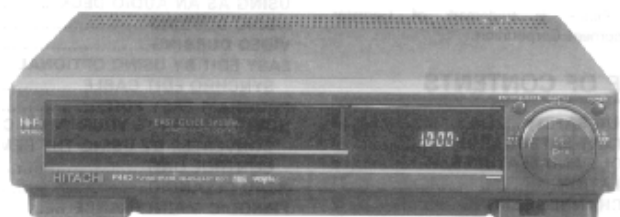
¹HITACHI

Instruction Manual



Video Deck

VT-F462A



Hitachi Home Electronics (America), Inc.

For information concerning repairs, operation or technical assistance, please contact the Service Department of your nearest Regional Office.

Eastern Regional Office

1290 Wall Street West, Lyndhurst, New Jersey 07071
Tel. 201-935-8980

Mid-Western Regional Office

1400 Morse Ave., Elk Grove Village, Ill. 60007
Tel. 708-593-1550

Southern Regional Office

3890 Steve Reynolds Blvd., Norcross, GA 30093
Tel. 404-279-5600

Western Regional Office

401 West Artesia Boulevard, Compton, California 90220

HITACHI SALES CORPORATION OF HAWAII, INC.

3219 Koapaka Street, Honolulu, Hawaii 96819
Tel. 808-836-3621

HITACHI (HSC) CANADA INC.

3300 Trans Canada Highway, Pointe Claire,
Quebec, H9R 1B1, CANADA
Tel. 514-697-9150

P4706886 ©Hitachi, Ltd. 1992

E72118
Printed in Japan KF-N(N)

FEATURES	3
FOR YOUR SAFETY	5
IMPORTANT SAFEGUARDS	7

FEATURES

CONTROLS AND FEATURES.....	11
USING THE REMOTE CONTROL UNIT.....	18
INSTALLATION INTRODUCTION & ANTENNA SYSTEM	19
INTRODUCTION	19
CABLE SYSTEMS	19
Rabbit ear antenna	19
INSTALLATION CABLE SYSTEM.....	20
CABLE SYSTEM INFORMATION	20
ADDITIONAL INFORMATION.....	20
CABLE SYSTEM VCR OPERATION	22
VIDEO CHANNEL SETTING	24
NORMAL TV VIEWING	24
SETTING THE CLOCK	25
CHANNEL TUNING	29
VCR FUNCTION SETTING	33
CONNECTION WITH A/V TV.....	37
CASSETTE TAPES	38
RECORDING TV PROGRAMS	39
INSTANT RECORDING	42
PLAYBACK	43
PLAYBACK USING SHUTTLE RING	47
VCR Plus+ FEATURE	48
VCR Plus+ SET UP FOR CONNECTION A 3	51
VCR Plus+ SET UP FOR CONNECTION B	55
VCR Plus+ SET UP FOR CONNECTION C	56
VCR Plus+ RECORDING	58
TIMER RECORDING	61
RECALLING THE PROGRAM	66
CLEARING ("ERASING") INFORMATION FROM A PROGRAM 3	67
PROGRAM PRIORITY	68
RECORDING FROM ANOTHER VCR.....	69
RECORDING FROM A VIDEO CAMERA/RECORDER	69
USING AS AN AUDIO DECK 6	70
AUDIO DUBBING	72
VIDEO DUBBING	73
EASY EDIT BY USING OPTIONAL SYNCHRO EDIT CABLE	73
PROGRAM EASY EDIT	74
HOW TO OPERATE YOUR TV OR CABLE CONVERTER BY USING THE REMOTE CONTROL UNIT	77
HEAD CLEANING.....	79
PERIODIC MAINTENANCE.....	80
PROBLEM GUIDE	81
SPECIFICATIONS	83
ACCESSORIES PARTS NUMBERS (For U.S.A. only)	84

Please read this instruction manual carefully before use and refer to it if any difficulties arise.

FEATURES

FEATURES

- VCR Plus+* programming feature
- VHS Hi-Fi stereo system
- Auto head cleaning system
- Setting 8 programs/1 year is possible with built-in programmable timer
- Cable-compatible frequency synthesizer quartz tuner
- Auto tracking
- Illuminated remote control for use in common by TV/VCR/Cable Converter
- Multichannel Television Sound (MTS) is receivable
- Easy guide system feature
- High speed rewind (2.5 minutes with T-120 tape)

* VCR Plus+ is trademark of Gemstar Development Corporation.

EASY GUIDE SYSTEM FEATURE

This feature displays an outline of VCR operation procedure (playback, recording, clock setting, etc.) in 3 languages on the TV screen to guide you when operating the VCR.

Connect the VCR and TV by the procedure shown on pages 11 - 17, and then perform the following.

1. Turn on TV and VCR.
2. Set the TV to channel 3 (or 4).
3. Press GUIDE button on the remote control unit.

**HELLO I AM HITACHI'S
EASY GUIDE SYSTEM**

SELECT LANGUAGE

- ENGLISH**
- 2 FRANCAIS**
- 3 ESPANOL**

***TO START PRESS**

4. Select the language by pressing one of buttons "1" ~ "3" and then press the GUIDE button.

"1" for English

"2" for French

"3" for spanish

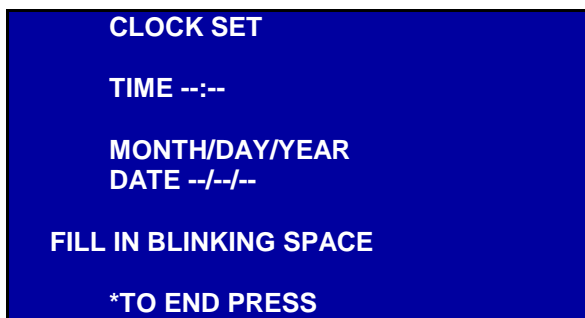
SELECT NUMBER TO
1 VCR PLUS RECORDING
2 DELAYED RECORDING
3 PROGRAM REVIEW

- 4 INITIAL SETUP**
- 5 CLOCK SET**
- 6 VCR PLUS SETUP**
- 7 PROBLEM GUIDE**

***TO END PRESS**

5. Press "1" through "7" on the remote control unit.
For example, press "5" for clock setting.

FEATURES



6. Press "GUIDE" to return to "original menu".

FOR YOUR SAFETY

FOR YOUR SAFETY

Power supply: AC 120V 60 Hz only

The **POWER** switch switches the VCR on and off, leaving the clock/timer unaffected.

If the unit is to be left unattended for a long period, it is recommended that the unit be completely switched off and the plug removed.

Illustrated below is the label on the back of your unit.



This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.



This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING: Many television programs and films are copyrighted. In certain circumstances, copyright law may apply to private in-home videotaping of copyrighted materials.

WARNING: TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

Moisture condensation

If you pour cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is moisture condensation.

Moisture condensation on the head drum, one of the most crucial parts of the unit, will cause damage to the tape. When the VCR is exposed to a rapid temperature change from cold to warm, some condensation will occur. Under this condition, connect the power cord to the AC line, press **POWER** button on and allow at least two hours for the VCR to dry out.

FOR YOUR SAFETY

Caution for users living in an area with frequent electrical storms

Your VCR and TV may be damaged by power surges, or during electrical storms if they are connected to a cable systems/outside antenna, or they are plugged into an AC outlet.

The use of surge protection devices at the antenna and AC inputs to the VCR and television will decrease the likelihood of damage from lightning surges in the power line or antenna/cable system.

Two surge suppressor models are available from Hitachi Parts Distributors for U.S.A. only. Model COMBO #1 provides one protected AC receptacle and a set of in/out cable/antenna protection ports. Model COMBO #2 offers four protected AC receptacles, a six foot line cord, master rocker switch and a set of in/out cable/antenna protection ports.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference regulations of the Canadian Department of Communications.

IMPORTANT SAFEGUARDS

IMPORTANT SAFEGUARDS

In addition to the careful attention devoted to quality standards in the manufacture of your video product, safety is a major factor in the design of every instrument. But, safety is your responsibility too. This page lists important information that will help to assure your enjoyment and proper use of a Video Cassette Recorder and accessory equipment. Please read it carefully before operating your video product and keep it in a handy place for future reference.

INSTALLATION

1 Read and Follow Instructions -- All the safety and operating instructions should be read before the video product is operated. Follow all operating and use instructions.



2 Retain Instruction -- The safety and operating instructions should be retained for future reference.

3 Heed Warnings -- Comply with all warnings on the video product and in the operating instructions.

4 Polarized Plug -- This video product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. To prevent electric shock do not use this polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted without blade exposure. If you need an extension, use a polarized cord.



5 Power Sources -- This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your video dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.

6 Overloading -- Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock. Overloaded AC outlets and extension cords are dangerous, and so are frayed power cords, damaged or cracked wire insulation and broken plugs. They may result in a shock or fire hazard. Periodically examine the cord and have it replaced by your service technician if appearance indicates damage or deteriorated insulation.



7 Power Cord Protection -- Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

IMPORTANT SAFEGUARDS

8 Ventilation -- Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the video product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the video product on a bed, sofa, rug or other similar surface. This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the video product manufacturer's instructions have been followed.



9 Attachments -- Do not use attachments unless recommended by the video product manufacturer as they may cause hazards.

Caution: Maintain electrical safety. Powerline operated equipment or accessories connected to this unit should bear the UL listing mark or CSA certification mark on the accessory itself and should not have been modified so as to defeat the safety features. This will help avoid any potential hazard from electric shock or fire. If in doubt, contact qualified service personnel.

10 Water and Moisture -- Do not use this video product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.

11 Accessories -- Do not place this video product on an unstable card, stand, tripod, bracket or table. The video product may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart, stand, tripod, bracket or table recommended by the manufacturer, or sold with the video product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

11A An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



12 Outdoor Antenna Grounding -- If an outside antenna or cable system is connected to the video product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See example below.

EXAMPLE OF ANTENNA GROUNDING

13 Power Lines -- An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching or approaching such power lines or circuits as contact with them might be fatal. Installing an outdoor antenna can be hazardous and should be left to a professional antenna installer.

USE

14 Cleaning -- Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

15 Object and Liquid Entry -- Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the video product.



16 Lightning -- For added protection for this video product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable-system. This will prevent damage to the video product due to lightning and power-line surges.



SERVICE

17 Servicing -- Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

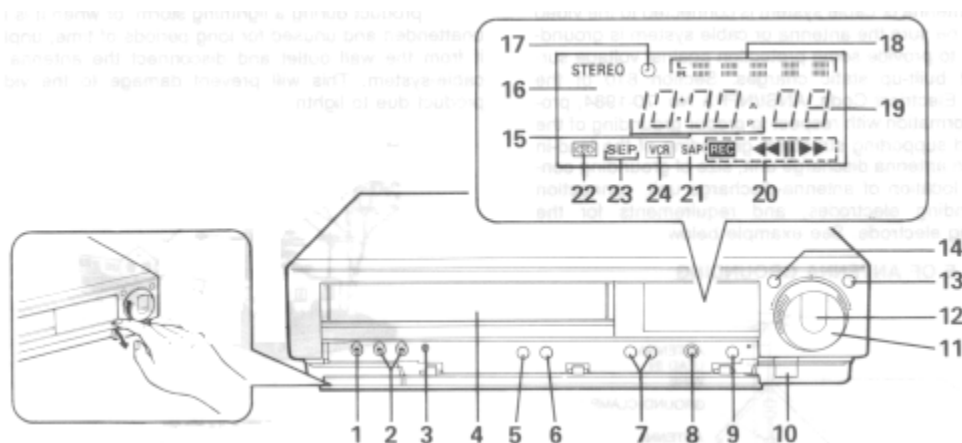
18 Conditions Requiring Service -- Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions.

- a. When the power-supply cord or plug is damaged.
- b. If liquid has been spilled, or objects have fallen into the video product.
- c. If the video product has been exposed to rain or water.
- d. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
- e. If the video product has been dropped or the cabinet has been damaged.
- f. When the video product exhibits a distinct change in performance - this indicates a need for service.

19 Replacement Parts -- When replacement parts are required, have the service technician verify that the replacements he uses have the same safety characteristics as the original parts. Use of replacements specified by the video product manufacturer can prevent fire, electric shock or other hazards.

20 Safety Check -- Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks recommended by the manufacturer to determine that the video product is in safe operating condition.

CONTROLS AND FEATURES



1. VIDEO IN

Receives video signal from a video camera or another VCR.

2. AUDIO IN

Receive audio signals from a stereo system or another VCR. AUDIO IN (L) handles the left-channel stereo sound or monaural sound. If you connect an audio source to only AUDIO IN (L), the same sound is recorded on Hi-Fi tracks (L) and (R) in monaural.

3. EDIT IN/OUT JACK

This jack allows you to connect selected models of VCR's and video camera using optional synchro edit cables. Refer to page 49 for details.

4. CASSETTE COMPARTMENT

Insert a cassette in through a door, and loading will be completed automatically.

Note: Power is turned on automatically when the cassette is loaded.

5. AUDIO DUBBING BUTTON

Turns the audio dubbing features on. To turn this feature off, press STOP button. See page 47 for details.

6. VIDEO DUBBING BUTTON

Turns the video dubbing features on. To turn this feature off, press STOP button. See page 48 for details.

7. CHANNEL SELECT BUTTONS

Select the channels you wish to view or to record by pressing these buttons.

And you can also select L (line)* by pressing these buttons to record or watch the program input at the VIDEO IN and AUDIO IN.

(*One channel position either higher or lower outside the range of your preset channels.)

8. REC/IRT BUTTON

Press to start recording.

9. PAUSE/STILL BUTTON

Press to pause during recording or playback.

10. INFRARED RAY RECEIVING SECTION

Receives the infrared ray from remote control unit.

11. SHUTTLE RING

During play, turn this ring to speed up or slow down playback speed at a smooth variable rate for everything from slow motion to forward search. Removing the hand from the ring restores a normal play.

12. PLAY/STILL BUTTON

Press in the stop mode to set the VCR to the playback mode.

Press during play to set the VCR to the still play mode.

Press again to restore normal play.

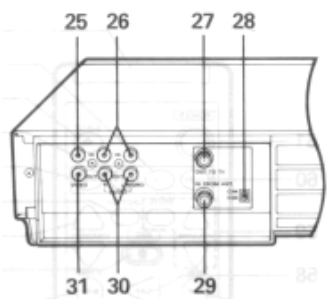
13. POWER BUTTON

Turn system power on and off.

14. STOP/EJECT BUTTON

If this button is pressed, while the set is operating, the running of tape stops and all operating modes are cancelled (except for timer recording). The cassette is ejected, when this button is pressed again in STOP mode.

Note: Power may be on or off when removing the cassette.



15. CLOCK DISPLAY

Shows the clock and tape counter.

16. STEREO INDICATOR

Lights when receiving a stereo broadcast.

17. TIMER INDICATOR

Will light when turning power off after programming.

18. LEVEL METER







Shows the input level of each audio channel during recording and the recorded levels during playback. However, when a tape on which normal (linear) sound was recorded is played back, the "L" and "R" indications disappear from the display.

19. CHANNEL INDICATOR

Normally shows the channel number.

"L" lights when you select the LINE position by pressing the AVX button or CHANNEL select button. LINE position is used to record or watch the program input at the VIDEO IN and AUDIO IN.

20. VCR MODE INDICATOR

-  appears during recording.
-  appears during the rewind mode.
-  appears during the fast-forward mode.
-  appears during the playback.
-  appears when the PAUSE button is pressed during record or play mode and disappears when the PAUSE button is pressed again.
-  appears during slow-motion play using the shuttle ring.

21. SAP INDICATOR

Some TV stations transmit a "Second Audio Program" (SAP). The SAP is normally used for a second language.

This indicator lights when the VCR is tuned to SAP broadcast.

22. INDICATOR

Appears when the VCR is turned on or the VCR is in the playback mode.

23. TAPE SPEED INDICATORS

24. TAPE-IN INDICATOR

Lights when cassette is loaded in the compartment.

25. VIDEO IN

CONTROLS AND FEATURES

Receives video signal from a video camera or another VCR.

26. AUDIO IN

Receives audio signals from a stereo system or another VCR. AUDIO IN (L) handles the left-channel stereo sound or monaural sound. If you connect an audio source to only AUDIO IN (L), the same sound is recorded on Hi-Fi tracks (L) and (R) in monaural.

27. ANTENNA OUTPUT

Connect this terminal to the antenna terminal on the back of the TV.

28. RF CONVERTER SWITCH

Set this switch to whichever channel (CH3 or CH4) is unused in your area.

29. ANTENNA INPUT

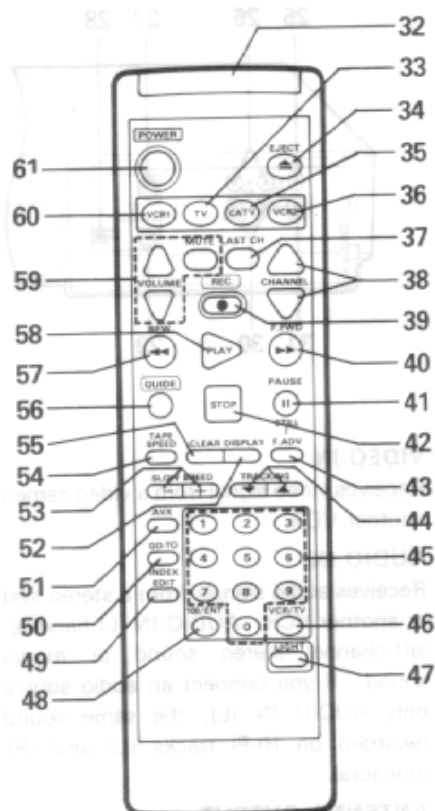
Connect the UHF and/or VHF antenna to this terminal.

30. AUDIO OUT

For a connection to a monitor or another VCR.

31. VIDEO OUT

For connection to monitor TV.



32. SIGNAL TRANSMISSION WINDOW

Transmits an invisible light beam (infrared) from the remote control unit to the VCR.

33. TV BUTTON

First press this button when operating your TV with this remote control, and then press the button which corresponds to the function you want.

34. EJECT BUTTON

When this button is pressed in modes other than recording, the tape stops, and the cassette is ejected.

35. CATV BUTTON

First press this button when operating your Cable Converter with this remote control, and then press the button which corresponds to the function you want.

36. VCR 2 BUTTON

Press this button when using another Hitachi VCR and operating the remote control provided to control the two VCRs.

37. LAST CH BUTTON

Used to control the TV.

You need not press the TV button before pressing this button.

38. CHANNEL SELECT BUTTONS

Same as the buttons on the VCR.

39. REC BUTTON

Press to start recording.

40. FAST FORWARD BUTTON

Press to activate fast forward.

Press this button during playback, and forward playback picture at high speed can be seen.

41. PAUSE BUTTON

Press to pause during recording or playback.

42. STOP BUTTON

Press to stop tape. The STOP button must be pressed between "RECORD" and another operation.

CONTROLS AND FEATURES

43. F.ADV BUTTON

Press this button during still playback to advance the picture by one frame. Press this button during playback for forward high-speed search that lasts for about 1 minute of playing time, then goes back to normal play mode.

44. TRACKING CONTROL BUTTONS

To minimize noise in playback and slow playback.

45. NUMBER BUTTONS "0" THROUGH "9"

Select any channel (whether or not it is in the "Tuner Scan List") by pressing two buttons. (Press "0" and then "8" for channel 8.) The number buttons are also used for setting the clock and programming the timer.

46. VCR/TV SELECT BUTTON

Selects the signal to be viewed.

The VCR indicator comes on when the unit is in VCR mode and the signal received by the VCR is displayed on the TV screen. With the switch in the TV position (indicator light off) the broadcast signal is received directly by your TV set. When the VCR power is turned off, the VCR automatically switches to "TV".

CONTROLS AND FEATURES (cont.)

pg. 9

47. LIGHT BUTTON

When this button is pressed, the VOLUME, CHANNEL, REW, F.FWD and PLAY buttons light for about 8 seconds.

Note: The VCR1, TV, CATV or VCR2 button lights according to the mode you have selected.

48. 100/ENT BUTTON

Used to select TV or CATV channels.

Press "100", "2", "3" in this order to select channel 123. Press "100", "0" and "5" for channel 105.

49. EDIT BUTTON

Use this button to create an edit program during "Program Easy Edit". See page 50 for details.

50. GO-TO/INDEX BUTTON

Press this button to search for the scene you want to view using the counter GO-TO or INDEX feature.

51. AVX BUTTON

Press to select tuner position to record or view an off-the-air TV program (through the VCR's built-in tuner) the L1 or L2 (line) position to record or view the program input through the video and audio line input jacks.

52. DISPLAY BUTTON

1st Press.... Calls up the mode display on TV screen.

2nd Press (before display disappears).... The display on TV screen disappears except for "Linear Time Counter".

3rd Press.... The counter memory "M" appears on TV screen.

Also changes the VCR's display from the clock to the counter.

4th Press.... Clears the display on TV screen. Also changes the VCR's display from the counter to the clock.

53. SLOW SPEED BUTTONS

Press the (-) or (+) button to view the pictures at slow speed. During slow playback the slow speed can be adjusted by pressing the (-) or (+) button.

54. TAPE SPEED SELECT BUTTON

Recording time using Cassette tape T-160: EP: 8 hours SP: 2.6 hours

Notes:

- Playback speed automatically corresponds with recorded speed.

CONTROLS AND FEATURES

- This VCR cannot record in LP mode, but can play LP recorded tapes.

. CLEAR BUTTON

Used for programming the timer.

And also used for counter reset button.

56. GUIDE BUTTON

Press this button to use the easy guide system feature. (See page 2 for details.)

57. REW BUTTON

Press to start rewind.

Press this button during playback, and reverse playback picture at high speed can be seen.

58. PLAY BUTTON

Press to start play.

59. TV CONTROL BUTTONS

Used for controlling the TV.

60. VCR1 BUTTON

First press this button when operating the VCR with this remote control and then press the button which corresponds to the function you want.

61. POWER BUTTON

Press to turn VCR on. Press again to turn VCR off.

USING THE REMOTE CONTROL UNIT

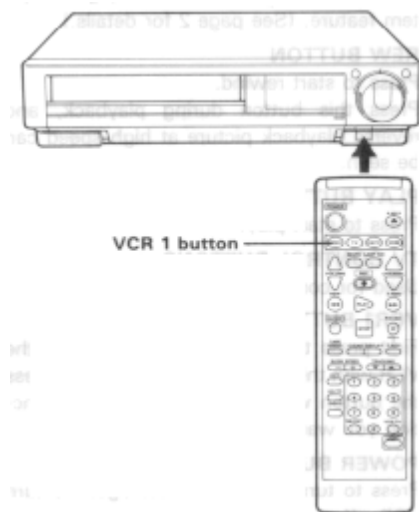
HOW TO INSTALL BATTERIES



NOTES:

1. Be sure to install two "AA" size batteries before use.
2. Be aware of the polarity.

Aim the remote control at the receiver on the front panel of the VCR.



NOTES:

1. If the range is short, try new batteries.
2. An object in between the VCR and remote control unit may block the invisible light beam and operation will not be possible.
3. If you cannot operate the VCR with this remote control, first press the VCR 1 button and then press the button which corresponds to the VCR function you want.

INSTALLATION INTRODUCTION & ANTENNA SYSTEM

INTRODUCTION

Place your Video Cassette Recorder (VCR) in a horizontal position on a solid, stable surface near your TV. Connect the VCR AC plug into a non-switched AC outlet. Before you can use your VCR, the TV antenna connection must be moved to the VCR. Then new connections must be added from the VCR to the TV. An accessory for common connections is included with your VCR. If your installation requires other accessories, they may be purchased at your Dealer or Electronic Parts Stores. There are several installations shown in the following figures. Select the figure which best matches your TV signal source, equipment features, and operating needs. TV broadcasts in your area may be VHF, UHF, or both. In a UHF-only area, use figure A3 for VHF and UHF connections between the VCR and TV. The VHF connection from VCR to TV is always needed for the VCR output channel of VHF Channel 3 or 4. Even if your VCR has Cable Tuning Ability (CTA), cable channels can only be received by connection to a Cable Service.

CABLE SYSTEMS

Cable system features and services vary in each local area. If you presently use your TV with a cable system, please read CABLE SYSTEMS INFORMATION on page 13 before making any connections.

"Note to CATV system installer: This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical".

Rabbit ear antenna

Your VCR can be used with this type of antenna only if the picture is very clear and stable. When the antenna is part of the TV, the leads may not reach the VCR. You can either extend the leads, or obtain a movable rabbit ear antenna. We recommend using an outside antenna.

Note: If your TV has single antenna input (UHF/VHF), use figure A1.

Precautions

- Avoid extreme heat, cold, moisture, dust, magnetic fields, and strong vibrations.
- Protect the VCR from household pets.
- In areas with frequent electrical storms, lightning protection devices attached to the cable/antenna should be checked each year for good connections and condition. AC power line Surge Protection accessories are recommended for the VCR and TV. Such devices are commonly used for computer protection, and will minimize damage to the TV and VCR in the event of AC surge from lightning strike or other cause. Whenever possible, the TV and VCR should be unplugged from AC, and disconnected from the antenna/cable during electrical storms.

CAUTION:

Do not place the VCR by a window where it will be exposed to strong sunlight as it may malfunction.

⏮ HIFI Tape Playing	SAP Second Audio Program
⏮ Cassette Loaded	EP Extended Play
REC Recording	SP Standard Play
⏮ Rewind	STEREO Recalling Stereo Broadcast
⏮ Fast-Forward	⌚ Programmed to Record Later
▶ Playback	
⏮ Pause	1 or 2 Signal Being Received through Audio/Video Input Jacks on Front or Back of Unit
⏮ Slow-Motion Play	
⏮ VCR Mode	

Figure A1

Figure A2

Figure A3

INSTALLATION CABLE SYSTEM

CABLE SYSTEM INFORMATION

Cable systems vary in features and services. The information and figures which follow cover most installations. If you need information about other installations, please write to Service at the nearest Hitachi address listed at the back of this manual. The tuning abilities of your VCR and the type of cable service you have will determine what connections can be used. The VCR Tuning Range is listed in the rear of this Manual. VCRs with Cable Tuning Ability (CTA) are able to tune channels listed for CATV. Most cable services will be one of the following four types.

1. Basic Cable: Apartment buildings and planned communities may provide this type of service. No channel selection Cable Box is used with the TV. All channels are received using VHF channels 2 - 13. With this system, no special connections or operating procedures are needed. Connect the VCR and TV as shown in figure C1.

2. Extended Cable - A Cable Box is used for TV Channel Selection: The TV is usually set to channel 3 or 4, and all channel selection is performed using the cable company supplied Cable Box. In this type of system, no extra cost channels are available, and no channels are scrambled.

A CTA VCR can select channels on this system without a Cable Box, if the channels on the cable are in the VCR tuning range. The Cable Box may still be needed for the TV, unless the VCR is used as a cable converter.

You can use figure C1, C2, or C3 for Extended Cable connection. Connections in C1 and C2 need no additional accessories. The connection of figure C3 allows recording and watching different programs but operation is more complicated.

3. Extended Cable With Extra Cost Channels - No Scrambled Channels On System-Cable Converter Box Used For TV: In this type of cable system, extra cost channels are added or deleted before the cable enters the customer home.

If a CTA VCR and a CTA TV are used, a Cable Box is not needed. Connections can be made as shown in figure C1. If a non-CTA TV is used with a CTA VCR, either figure C2 or C3 can be used. If both non-CTA VCR and TV are used, figure C2 must be used.

4. Extended Cable With Extra Cost Channels - Scrambled Channels on System-Cable Descrambler/Converter Box Used For TV: In this type of system the cable company supplied Box must always be used to get proper reception of Extra Cost channels. All Extra Cost channels on the cable are scrambled, but the Cable Box unscrambles any that you pay extra to view. Channels included in the basic cable service fee are usually not scrambled, and can be tuned by a CTA VCR or CTA TV.

ADDITIONAL INFORMATION

When any type of scrambling is used for Extra Cost channels, the Cable Box must be used to view or record those channels. A CTA VCR does not include unscrambling ability. that ability is restricted to only cable company supplied equipment. On cable systems with scrambled channels, you have several choices. Among them are:

- a. Recording and watching only channels selected by the Cable Box (see figure C2).
- b. Adding a second cable company supplied Box.
- c. Adding switches to allow either recording and watching the channel selected by the Cable Box or recording a channel which is non-scrambled while watching another channel selected by the Cable Box (see figure C3).

Two Cable Systems: In some areas, two cables are used as inputs to the Cable Box. One cable may contain mostly non-scrambled channels, the other mostly Extra Cost scrambled channels. When you have a two-cable system, the cable with non-scrambled channels you wish to record (Cable A or Cable B) can usually be connected as in figure C3. One Cable can be connected directly, or both cables can be accessed by using the Cable Box. If you need to use both cables directly, write Hitachi service for a connection diagram.

INSTALLATION CABLE SYSTEM

CAUTION: Only high quality, low loss switches and splitters should be used. All connections must be with shielded Coax cable. If your added connections degrade the performance of Extra Cost channels, all connections should be removed. The circuit of figure C2 should cause least signal loss. If even the circuit of figure C2 is not satisfactory, consult your cable company about installation.

CABLE SYSTEM VCR OPERATION**Direct Cable Connection**

When a direct cable connection is used as in figure C1, VCR operation requires no special procedures.

Setting VCR Channels For Cable

Due to the many channels available on Cable, programming channel memory will require patience. Although the VCR is preset for channels 2 - 13 (air signals), the sequence of channels may be different on cable. For example, channel 6 of the VCR may actually receive channel 28, as identified by the station. Any VCR channel memory position can be programmed to select any channel. Please refer to the section on presetting channel memory for details. (See page 20.)

Cable: Figure C1

Cable Connection Using Cable Box Only

Interconnect as in figure C2.

1. Set the TV, Cable Box, and VCR power ON. Select a channel on the Cable Box.
 2. Set the VCR/TV switch to the VCR position, and set the channel selector of the TV to the Video channel output by the VCR (CH 3/4 setting on RF modulator).
 3. Using Channel Up/Down on the VCR, select the channel used for Cable Box output to the TV. You should be able to view the Cable Box output in only one VCR channel setting. If you are correctly set to the Cable Box, changing the channel setting of the VCR to any other channel will provide only a snowy picture. If no picture is obtained, re-check your connections and TV tuning to the VCR output channel. Setting TV tuning to view the VCR output is often easiest by playing a pre-recorded tape. The VCR should now be set to tune the Cable Box. To record from the Cable Box, the Cable Box must be turned ON. If the Cable Box is used to control TV power, and you do not wish to have the TV on during Recording or Timer Recording, turn the TV OFF with the power switch on the TV. If the Cable Box controls the TV volume using a Remote Control, the volume setting must be set to normal.
- Timer Recording: When you program the Timer for unattended recording, set the VCR to select the VCR channel used to view the Cable Box.
- The same VCR channel setting must be used for all timer programs. The VCR is unable to control channel selection when it is used with the Cable Box. The VCR can only select the Cable Box or no picture.
- Before leaving the VCR to perform Timer Recording, be sure to activate the timer mode, set the Cable Box power ON, and set the channel on the Cable Box to the channel you want to record.

Cable: Figure C2

Accessories required for optional cable connections - not provided

Cable: Figure C3

Cable Connection Direct or Using Cable Box

When using figure C3 with a non-scrambled cable system, the VCR Input Selector Switch No. 1 and the 2 Way Splitter No. 2 can be omitted, along with the coax interconnecting the two. Connecting the VCR Input directly to splitter No. 1, and the cable box Output directly to A/B switch No. 2.

Function of Accessories

2 Way Splitter No. 1: Divides the cable signal so the signal is provided to the VCR and the Cable Box.

A/B Selector Switch No. 1, VCR Recording Input Selector: Used to select the Source for VCR use. In one position, the cable can be recorded directly. In the other position, the VCR can record the Cable Box.

2 Way Splitter No. 2: Divides the signal from the Cable Box so the VCR can record it, or it can be viewed on TV.

A/B Selector Switch No. 2, TV Viewing Switch: Used to allow the TV to view the Cable Box while the VCR is recording Direct cable sources. In the other position, TV can view VCR Recording or Playing. (VCR/TV switch of video tape recorder must be in VCR mode.)

Operation: After completing connections, set A/B No. 2 to A position. Verify cable channels to TV. In this position, the TV and Cable Box can be used as previously, except when making unattended recording of the Cable Box. Then the Cable Box power must remain ON. To view what the VCR is Recording or playing, set the switch to position B. Tune the TV to the VCR output channel, and set the VCR/TV Switch to the VCR mode.

Operation of VCR

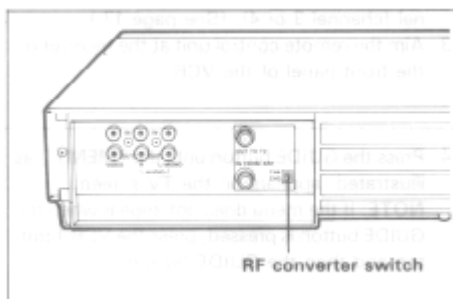
When the VCR Input Selector Switch A/B No. 1 is in position A, the VCR can record the Cable Box. One channel position of the VCR should be set to tune the Cable Box. Channel position 01 is recommended. Set the VCR as in the section for Using Cable Box Only, when using position A. When the A/B No. 1 is in position B, the VCR operates as indicated in Direct Connection to Cable. Refer to Setting channels for Cable.

Remember that when making a Timer Recording using the Cable Box, the Cable Box channel must be programmed into the Timer, the A/B No. 1 switch must be set to A, and Cable Box power must be left ON. When recording the Cable directly, be sure to set the switch to position B. The VCR cannot select between the Cable Box and Direct Cable inputs, so unattended recordings of both sources alternately should not be programmed unless someone is available to change the setting of switch A/B No. 1 during Timer operation.

VIDEO CHANNEL SETTING

VIDEO CHANNEL SETTING

The RF converter changes the video and audio signals from the tuner or tape playback, to a standard television broadcast signal on channel 3 or 4. To obtain video recorder output on either channel 3 or 4, set the RF converter switch to CH3 or 4 whichever channel is unused in your area.



NORMAL TV VIEWING

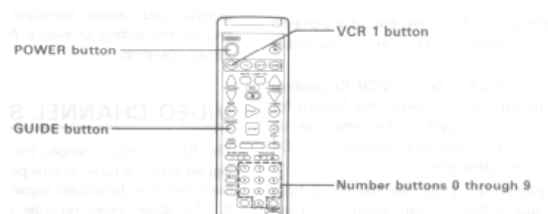
You do not need to disconnect VCR from your TV set to watch TV. When you turn off the POWER switch on your VCR, the VCR automatically switches to "TV". To watch TV, turn on TV and select a channel as usual.

SETTING THE CLOCK

SETTING THE CLOCK

Things to know before starting

- The clock uses the 12-hour system. (Be aware of AM and PM.)
- When you first plug in your VCR, the clock will read "--:--".
- While you are setting the clock, the "menu" display on the TV screen will prompt you through the procedures.
- If you press a wrong digit, press GUIDE button and restart the procedure from the beginning.



1. Turn on the power of both VCR and TV.
2. Be sure that the TV is set to the video channel (channel 3 or 4). (See page 17.)
3. Aim the remote control unit at the receiver on the front panel of the VCR.
4. Press the GUIDE button until the "MENU", as illustrated, appears on the TV screen.

Original menu

SELECT NUMBER TO
1 VCR PLUS RECORDING
2 DELAYED RECORDING
3 PROGRAM REVIEW

4 INITIAL SETUP
5 CLOCK SET
6 VCR PLUS SETUP
7 PROBLEM GUIDE
***TO END PRESS**

NOTE: If the menu does not appear when the GUIDE button is pressed, press the VCR 1 button and then the GUIDE button.

5. Press "5" button to set the clock.

CLOCK SET

TIME --:--

MONTH/DAY/YEAR
DATE --/--

FILL IN BLINKING SPACE

***TO END PRESS**

6. Set the hour by pressing two number buttons on the remote control unit and two more for the minute (for example, 0 2 1 5 for 2:15).

CLOCK SET

TIME 02:15
PRESS AM: PM:
MONTH/DAY/YEAR
DATE --/--/--

FILL IN BLINKING SPACE

*TO END PRESS

7. Press "1" for AM or "2" for PM.

CLOCK SET

TIME 02:15 PM

MONTH/DAY/YEAR
DATE --/--/--

FILL IN BLINKING SPACE

*TO END PRESS

8. Set the date by pressing six digits in order of month, day and year (for example, 1 2 2 0 9 2 for December 20, 1992).

CLOCK SET

TIME 02:15 PM

MONTH/DAY/YEAR
DATE 12/20/92 SUN

FILL IN BLINKING SPACE

*TO END PRESS

NOTE: Always press "0" before single-digit months and days.

9. Press GUIDE button to start the clock.

SELECT NUMBER TO

1 VCR PLUS RECORDING
2 DELAYED RECORDING
3 PROGRAM REVIEW

SETTING THE CLOCK

4 INITIAL SETUP
5 CLOCK SET
6 VCR PLUS SETUP
7 PROBLEM GUIDE
*TO END PRESS



SETTING THE CLOCK

NOTE: Now the display on the VCR will show the correct time.

10. Press GUIDE button once again to return to the TV screen.

NOTES:

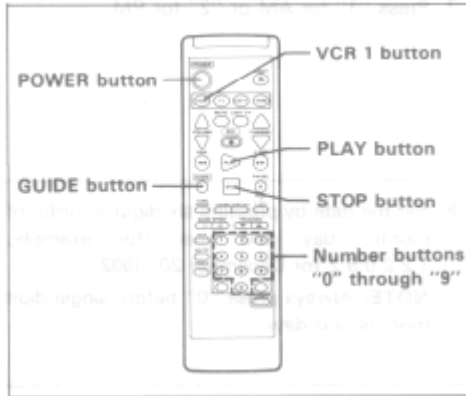
1. If you input an illogical time or date (13th month for example), question mark (?) will appear. In this case, simply input a correct digit.
2. The clock must be set to the correct time before programming the timer for unattended recording or using the Instant Recording Timer (IRT) feature.
3. The display of Clock Setting procedures will resume the "original menu" if not further steps are followed in the setting for about 1 minute.
4. If power is interrupted for about 30 minutes "--:--" will appear on the display and Timer and Programming will need to be reset.

CHANNEL TUNING

CHANNEL TUNING

The automatic programming feature makes it easy and convenient to program the TV station into the tuner's memory.

Automatic programming is usually a "one-time" procedure, but you will need to repeat it if you move to a location that has different channels, or if the power is interrupted for about 30 minutes.



1. Turn on the power of both VCR and TV.
2. Be sure that the TV is set to the video channel (channel 3 or 4). (See page 17.)
3. Aim the remote control unit at the receiver on the front panel of the VCR.
4. Press the GUIDE button until the "MENU", as illustrated, appears on the TV screen.

SELECT NUMBER TO
1 VCR PLUS RECORDING
2 DELAYED RECORDING
3 PROGRAM REVIEW

4 INITIAL SETUP
5 CLOCK SET
6 VCR PLUS SETUP
7 PROBLEM GUIDE
*TO END PRESS

NOTE: If the menu does not appear when the GUIDE button is pressed, press the VCR 1 button and then the GUIDE button.

5. Press button "4" for channel setting

INITIAL SETUP
1 ANTENNA/CABLE <ANT.>
2 AUTO CHANNEL SETTING
3 ADD OR ERASE CHANNEL
4 VCR CODING <VCR1>
5 MOVIE RETURN <ON>
6 AUDIO PLAYBACK <HIFI>
7 STEREO/MONO <STEREO>
8 SECOND AUDIO <OFF>
*TO END PRESS

CHANNEL TUNING

6. Press button "1" to select "ANT.", "CATV1" or "CATV2". If your VCR is connected to a home antenna system, select "ANT."; select "CATV1" when your VCR is connected to a cable antenna. Switching is performed between "ANT.", "CATV1" and "CATV2" on the TV screen every time button "1" is pressed.

INITIAL SETUP
1 ANTENNA/CABLE <CATV1>
2 AUTO CHANNEL SETTING
3 ADD OR ERASE CHANNEL
4 VCR CODING <VCR1>
5 MOVIE RETURN <ON>
6 AUDIO PLAYBACK <HIFI>
7 STEREO/MONO <STEREO>
8 SECOND AUDIO <OFF>
*TO END PRESS

NOTE: Usually select "CATV1" when your VCR is connected to a cable antenna. "CATV2" is to be selected in special cases. See page 21 for details.

7. Press "2" button.

The tuner will automatically cycle through all available channels in the area and place them in the tuner's memory. It takes about 2 - 3 minutes.

The channel number will stop changing when the tuner is finished cycling. Programming is now completed.

You can select the active channels by pressing the CHANNEL select buttons.

Eliminating unwanted preset channels

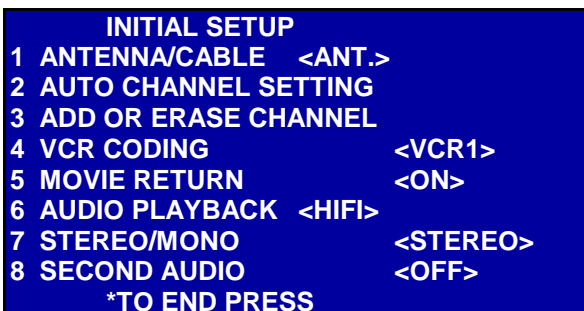
You may want to have only a few favorite channels in the tuner's memory so you can select them more quickly with the CHANNEL select button.

Occasionally automatic programming may include a vacant channel in the tuner's memory if there happened to be some sort of "noise" or "stray signal" on the channel when the tuner was programmed. This procedure explains how to delete any unwanted channels from the tuner's memory.

Adding channels to the tuner's memory

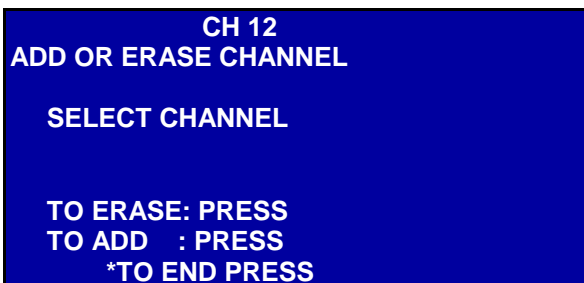
You may have deleted a channel from the tuner's memory and want to put it back. Occasionally automatic programming may "miss" an active channel because the signal is very weak or because the channel happened to be "off the air" when the tuner was programmed. Use this procedure to add any channel in the memory.

1. Follow steps 1 through 5 of "Channel Tuning" on page 20.



```
INITIAL SETUP
1 ANTENNA/CABLE <ANT.>
2 AUTO CHANNEL SETTING
3 ADD OR ERASE CHANNEL
4 VCR CODING <VCR1>
5 MOVIE RETURN <ON>
6 AUDIO PLAYBACK <HIFI>
7 STEREO/MONO <STEREO>
8 SECOND AUDIO <OFF>
*TO END PRESS
```

2. Press "3". The "menu", as illustrated, will appear on the TV screen.



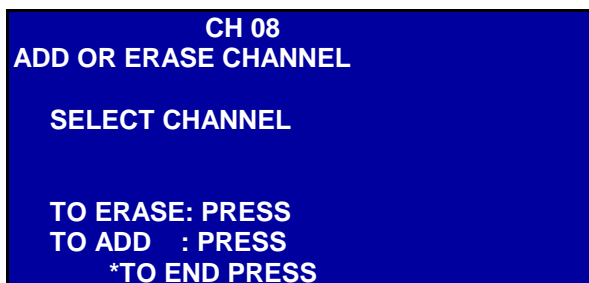
```
CH 12
ADD OR ERASE CHANNEL

SELECT CHANNEL

TO ERASE: PRESS
TO ADD : PRESS
*TO END PRESS
```


CHANNEL TUNING

3. Select the channel number by pressing buttons "0" through "9". (Press "0" and then "8" for channel 8.) Press the PLAY button to add channels and the STOP button to erase channels. Perform the same procedure to add or erase other channel numbers.



NOTE: Erased channels cannot be selected by the CHANNEL button, but can be selected by buttons "0" through "9".

4. Press GUIDE button to return to the TV screen.

NOTE: There are some areas where channels cannot be switched when "CATV1" is selected. In this case, select "CATV2" as in step 6 on the previous page.

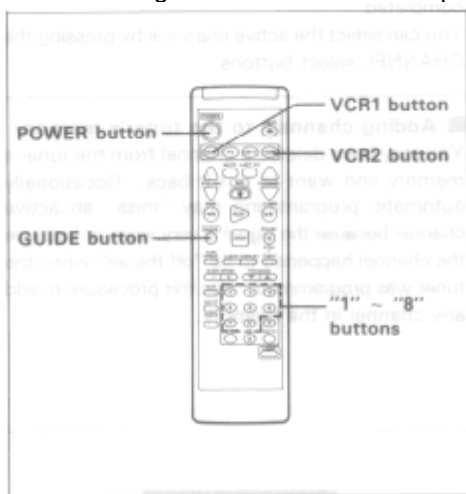
Your VCR is capable of receiving "off-the-air" TV channels (VHF 02 - 13, UHF 14 - 69) and CATV channels 01 - 125, a total of 181 channels*.

* You can receive channels 02 - 13 on both "off-the-air" and "cable" channels. Therefore, the total number of channels including "off-the-air" and "cable" channels is 181 channels ($12 + 56 + 125 - 12 = 181$).

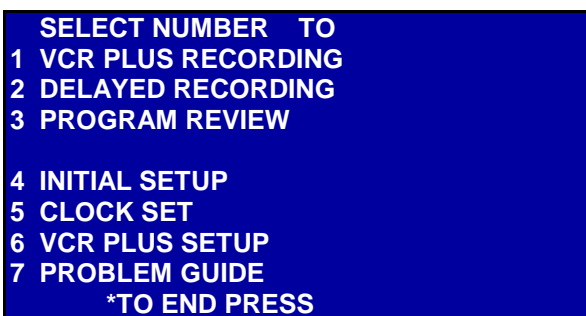
VCR FUNCTION SETTING

VCR FUNCTION SETTING

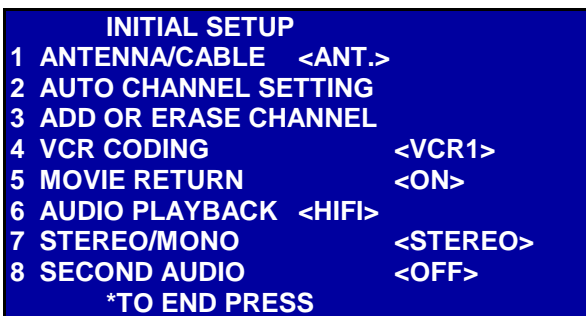
You can change the VCR mode as required using the "EASY GUIDE SYSTEM MENU".



1. Turn on the power of both the VCR and TV.
2. Be sure that the TV is set to the video channel (3 or 4).
3. Point the remote control unit at the receiver on the front panel of the VCR.
4. Press the GUIDE button until the "menu", as illustrated, will appear on the TV screen.



5. Press button "4".



- The VCR function set menu will appear. Press buttons "4" through "8" to select the required function.

VCR CODING MODE <VCR1/VCR2>

VCR FUNCTION SETTING

Press "4" to change

```
INITIAL SETUP
1 ANTENNA/CABLE <ANT.>
2 AUTO CHANNEL SETTING
3 ADD OR ERASE CHANNEL
4 VCR CODING <VCR1>
5 MOVIE RETURN <ON>
6 AUDIO PLAYBACK <HIFI>
7 STEREO/MONO <STEREO>
8 SECOND AUDIO <OFF>
*TO END PRESS
```

VCR 1: Normally select this "VCR1".

VCR 2: Select "VCR2" when you are using another Hitachi VCR and operate the two VCRs using the remote control unit provided with this VCR.

Note: After you have selected "VCR2", press the VCR2 button and then perform the following operations; otherwise, the VCR does not accept commands. To return to "VCR1" after you have selected "VCR2", press the VCR2 button first.

MOVIE RETURN <ON/OFF>

Press "5" to change

```
INITIAL SETUP
1 ANTENNA/CABLE <ANT.>
2 AUTO CHANNEL SETTING
3 ADD OR ERASE CHANNEL
4 VCR CODING <VCR1>
5 MOVIE RETURN <ON>
6 AUDIO PLAYBACK <HIFI>
7 STEREO/MONO <STEREO>
8 SECOND AUDIO <OFF>
*TO END PRESS
```

ON: When a cassette (with erase prevention tab removed) is loaded, playback starts automatically. When the tape reaches the end, it will stop automatically and will rewind to its start. Then the cassette will be ejected and the VCR's power will be switched off automatically.

Note: This function also rewinds the tape automatically when it detects a non-video recorded section lasting about 30 seconds or more.

OFF: This function does not operate.

Note: Select "OFF" when playing back a tape with only audio recorded on it.

AUDIO PLAYBACK SELECTION

Press "6" to change

```

INITIAL SETUP
1 ANTENNA/CABLE <ANT.>
2 AUTO CHANNEL SETTING
3 ADD OR ERASE CHANNEL
4 VCR CODING <VCR1>
5 MOVIE RETURN <ON>
6 AUDIO PLAYBACK <HIFI>
7 STEREO/MONO <STEREO>
8 SECOND AUDIO <OFF>
*TO END PRESS

```

You can switch the sound output from the AUDIO OUT jack during playback.

- **Hi-Fi:** Hi-Fi sound is played back with a Hi-Fi tape. The linear sound is played back with a non-Hi-Fi tape. Normally, select "Hi-Fi".
- **LINEAR:** The linear sound is played even when Hi-Fi sound is recorded on the tape.
- **MIX:** When different sounds are recorded on the Hi-Fi and linear tracks, select [MIX] to hear both sounds at the same time.

STEREO/MONO SELECTION

Press "7" to change

```

INITIAL SETUP
1 ANTENNA/CABLE <ANT.>
2 AUTO CHANNEL SETTING
3 ADD OR ERASE CHANNEL
4 VCR CODING <VCR1>
5 MOVIE RETURN <ON>
6 AUDIO PLAYBACK <HIFI>
7 STEREO/MONO <STEREO>
8 SECOND AUDIO <OFF>
*TO END PRESS

```

Your VCR is capable of recording stereo sound from TV stations transmitting stereo in your area. All you have to do is to make sure the STEREO indicator is displayed in the VCR display as the VCR can receive stereo broadcasts. Normally this function can be left in the STEREO mode. Your VCR will then automatically record either stereo or monaural sound - whatever is broadcast.

In some fringe viewing areas, however, the stereo signal may not be strong enough for quality reception. the signal may drift or become noisy. Should that occur, change the STEREO/MONO function to the MONO mode to receive clearer, cleaner sound.

SECOND AUDIO ON/OFF SELECTION

Press "8" to change

```

INITIAL SETUP
1 ANTENNA/CABLE <ANT.>

```


VCR FUNCTION SETTING

2 AUTO CHANNEL SETTING
3 ADD OR ERASE CHANNEL
4 VCR CODING <VCR1>
5 MOVIE RETURN <ON>
6 AUDIO PLAYBACK <HIFI>
7 STEREO/MONO <STEREO>
8 SECOND AUDIO <OFF>
*TO END PRESS

Some TV stations broadcast another sound channel along with selected stereo programs called the SAP (Second Audio Program). The SAP audio is sometimes used to broadcast the second sound track of a bilingual movie.

If desired, you can record the SAP audio on both the Hi-Fi and linear sound tracks by changing the SAP menu display to ON. For normal recording, leave the SAP display set to OFF.

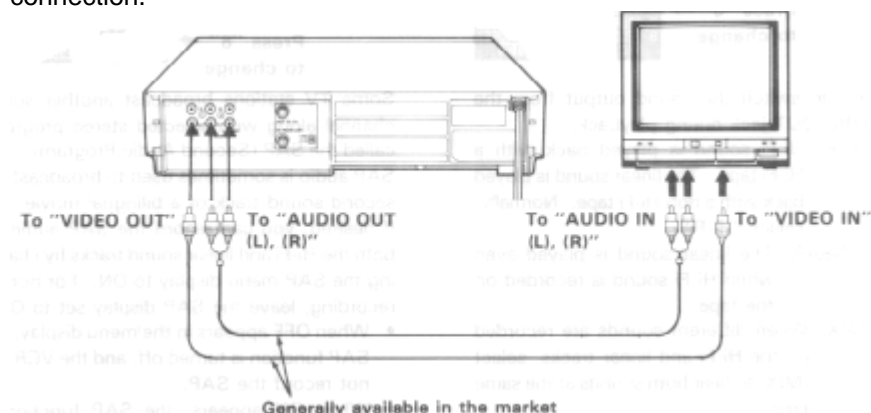
- When OFF appears, the SAP function is turned off, and the VCR will not record the SAP.
- When ON appears, the SAP function is turned on and the VCR will record SAP audio when it is broadcast.
- Because SAP is transmitted together with a stereo signal, the STEREO function (described above) must also be set to the STEREO mode before your VCR can record the SAP.

CONNECTION WITH A/V TV

CONNECTION WITH A/V TV

If your TV has audio/video input jacks, connect it to this VCR as follows; you can enjoy better a picture and sound.

Connect the antenna, VCR and TV as shown on pages 11 - 17 and then perform the following connection.



1. Connect the VCR and TV as shown in the figure
2. When you select "VIDEO" by pressing the input select button of the TV, you can view a tape played back by the VCR or a program selected by the channel select button of the VCR.

Hi-Fi SOUND

This VCR records sound using the following two formats.

Hi-Fi sound

FM sound is recorded using the rotary audio heads.

Normal (linear) sound

Records in monaural using the same format as with a non-Hi-Fi VCR. Therefore, conventional VCRs can be used for playback.

Remarkable Specifications of Hi-Fi Sound

- Dynamic range 90 dB
- Frequency response 20 Hz - 20 kHz
- Wow and flutter 0.005% or less

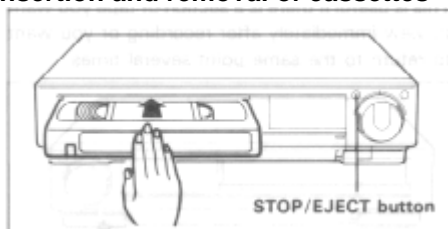
Recording of Multichannel Television Sound

- Stereo programs are recorded in Hi-Fi on both the L and R channels and also recorded on the linear track as monaural.

CASSETTE TAPES

CASSETTE TAPES

Insertion and removal of cassettes



Insertion

1. Insert the cassette.


Notes:

- When the cassette is loaded, power is turned on automatically and TAPE-IN indicator  lights.

Removal

1. Press STOP/EJECT button.
2. Remove the cassette.

Types of video cassette

Use video cassettes with the  mark in this VCR. The table below shows how to distinguish difference in recording time of cassettes.

TYPES	RECORDING TIME	
	SP	EP
T-120	120 min.	360 min.
T-160	160 min.	480 min.

It is recommended that the "SP" speed is selected to obtain better picture quality when recording.

NOTE: This VCR cannot record in LP mode. However, it can play cassettes recorded in LP mode.

To avoid erasing a recording

Break off the safety tab using a screwdriver or similar tool.



To re-record on a cassette which has its safety tab removed

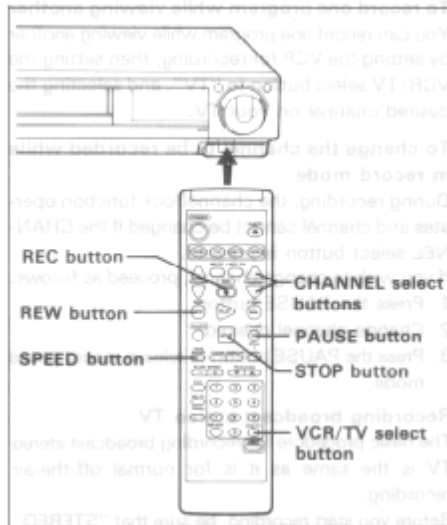
Cover the hole with cellophane tape.



Refer to the instructions included with cassettes for more information.

RECORDING TV PROGRAMS

RECORDING TV PROGRAMS



1. If you wish to view a program being recorded, turn on TV and select the channel 3 or 4 for your video channel.
2. Insert cassette.
VCR power is turned on automatically.

Note: Whenever you change the mode, the new mode is displayed on the TV screen automatically for about a few seconds.

3. Press SPEED button to select "SP" or "EP".
4. Press the VCR/TV select button to select "VCR" (VCR indicator lights) if you wish to view a program being recorded.
5. Select channel to be recorded.
6. Press REC button. Recording will start.

Note: If the erase prevention tab of the cassette has been removed, the cassette is ejected automatically when you press REC button.

7. Press PAUSE button to stop recording temporarily. Press again to release.

Note: When the REC-PAUSE mode continues for more than 5 minutes, the VCR will automatically change to stop mode to protect the tape.

8. Press STOP button to stop recording.

To record one program while viewing another

You can record one program while viewing another by setting the VCR for recording, then setting the VCR/TV select button to "TV", and selecting the desired channel on your TV.

To change the channel to be recorded while in record mode

During recording, the channel lock function operates and channel cannot be changed if the CHANNEL select button is pressed.

If you wish to change channel, proceed as follows.

1. Press the PAUSE button.
2. Change channel desired.
3. Press the PAUSE button to release record pause mode.

Recording broadcast stereo TV

The basic procedure for recording broadcast stereo TV is the same as it is for normal off-the-air recording.

Before you start recording, be sure that "STEREO" is selected following "STEREO/MONO SELECTION" on page 23. The STEREO indicator will come on if the station is broadcasting in stereo. Press the REC button to start recording.

INITIAL SETUP	
1 ANTENNA/CABLE	<ANT.>
2 AUTO CHANNEL SETTING	
3 ADD OR ERASE CHANNEL	
4 VCR CODING	<VCR1>
5 MOVIE RETURN	<ON>
6 AUDIO PLAYBACK	<HIFI>
7 STEREO/MONO	<STEREO>
8 SECOND AUDIO	<OFF>
*TO END PRESS	

Recording Second Audio Program (SAP)

Some stations transmit the Second Audio Program. To record the Second Audio Program, be sure that "ON" is selected following "SECOND AUDIO ON/OFF SELECTION" on page 23. When the station broadcasts an SAP, the SAP indicator will turn on. Press the REC button to start recording.

Your VCR will record the SAP audio on both the Hi-Fi and linear sound tracks.

Note: Because SAP is transmitted together with a stereo signal, the STEREO function must also be set to the STEREO mode before your VCR can record the SAP.

RECORDING TV PROGRAMS

INITIAL SETUP	
1 ANTENNA/CABLE	<ANT.>
2 AUTO CHANNEL SETTING	
3 ADD OR ERASE CHANNEL	
4 VCR CODING	<VCR1>
5 MOVIE RETURN	<ON>
6 AUDIO PLAYBACK	<HIFI>
7 STEREO/MONO	<STEREO>
8 SECOND AUDIO	<ON>
*TO END PRESS	

Counter memory function

This is useful if there is a section of tape you want to view immediately after recording or you want to return to the same point several times.



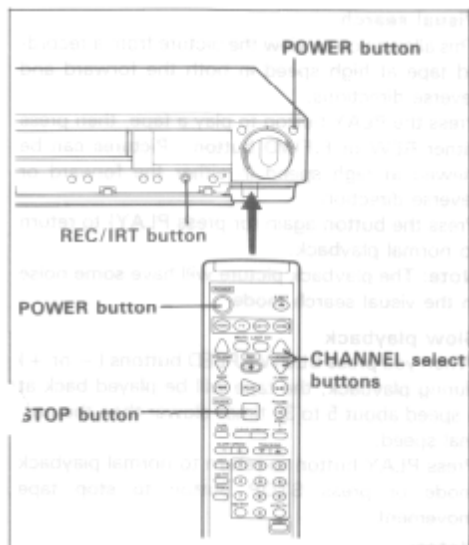
1. Press the DISPLAY button to display the counter reading on the TV screen.
2. Begin recording or playing back a tape.
3. At the point you want playback to start, press CLEAR button to reset the Counter to "0:00:00".
4. Press the STOP button when recording or playback finishes.
5. Press the DISPLAY button again to display the counter memory "M" on the TV screen.
6. Press the REW button. The tape will automatically stop at the pre-selected "0:00:00M" position.

NOTE: The tape will also automatically stop at about "0:00:00M" during fast forwarding.

INSTANT RECORDING

INSTANT RECORDING

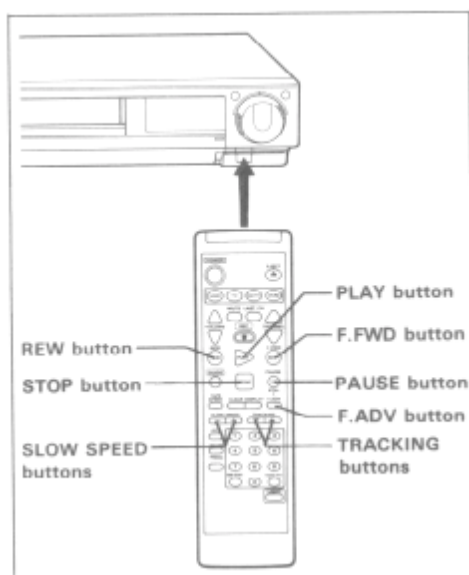
Instant Recording Timer (IRT) allows you to make simplified timer recording without using the program timer. Be sure that clock is set to the correct time before IRT.



1. Follow the steps 1 through 6 on "RECORDING TV PROGRAM" on page 25.
2. After recording has started, press REC/IRT button on the VCR once again to indicate the recording time on the display. The time changes in hours and minutes in the order of 0:30, 1:00, 1:30, 2:00, 3:00 and 4:00 every time the button is pressed. During recording, the remaining time is displayed.
3. At the end of recording the display reads "0:00"; the VCR will automatically stop recording and then power is turned off.

NOTE: To stop the VCR during "IRT", press POWER button and then STOP button (on the VCR or remote control) within 10 seconds.

PLAYBACK



1. Insert the cassette. VCR power is turned on automatically.
2. Turn the TV on and select the video channel.
3. Press the PLAY button.
4. Press the STOP button to stop playback.

Auto Tracking

When playback is started, the auto tracking function operates and adjusts tracking automatically so the picture is optimized.

- Auto tracking may not operate correctly when the tape is scratched or the recorded condition is poor. In this case, press the tracking control button (▼ or ▲) to adjust tracking.
- After operating the tracking manually, eject the cassette to operate auto tracking feature.

Still playback

When the PAUSE button is pressed during playback, a still picture can be seen. To start again press PAUSE or PLAY button and the VCR will continue playback.

Notes:

- There will be some noise (interference) in the still pictures.
- When the still mode continues for about more than 5 minutes, the VCR will automatically change to stop mode to protect the tape.
- If vertical jitter (shaking) occurs during the still mode, press either TRACKING control button (▲ or ▼) (one by one) to minimize it.

Frame Advance

When you press F.ADV button during Still (play•pause) mode, one frame at a time can be seen.

PLAYBACK

Visual search

This allows you to view the picture from a recorded tape at high speed in both the forward and reverse direction.

Press the button again (or press PLAY) to return to normal playback.

Note: The playback picture will have some noise in the visual search mode.

Slow playback

When you press SLOW SPEED buttons (- or +) during playback, the tape will be played back at a speed about 5 to 30 times slower than the normal speed.

Press PLAY button to return to normal playback mode or press STOP button to stop tape movement.

Notes:

- During slow playback TRACKING button (▼ or ▲) can be adjusted to minimize noise bands.
- During slow playback the slow speed can be adjusted by operating the SLOW SPEED buttons (- or +). If you press the (-) button, the speed gets slower, and if you press the (+) button, the speed gets faster.
- When the slow mode continues for more than about 5 minutes, the VCR will automatically change to stop mode to protect the tape.

When you play prerecorded tapes, the mode indication may not appear correctly, but this does not indicate a fault.

Skip playback

When you press the F.ADV button during playback, the tape is searched forward for about 1 minute of recording time and then the normal playback mode resume.

Automatic rewind

The tape will stop and automatically rewind when the end of the tape is reached.

This function does not operate during timer recording and instant recording.

Rewind shut off

If power button is pressed during rewind operation, power will be turned off automatically after the tape has completely rewound.

Linear Time Counter

The counter on the TV screen or in the VCR display shows length of tape run in hours, minutes and seconds.

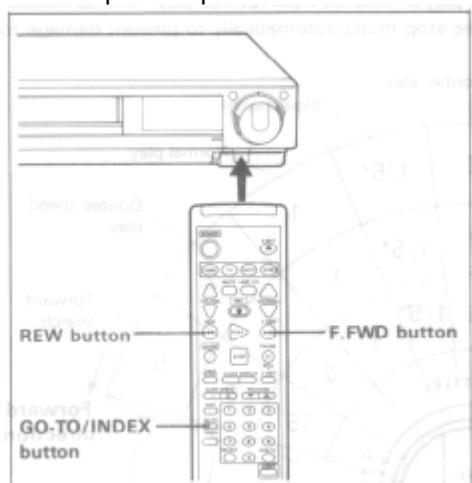
Load a cassette into the VCR and perform recording or playback; the counter indicates the elapsed time.

**Notes:**

- The linear time counter does not operate when nothing is recorded on the tape.
- Counter changes to 0:00:00 when the cassette is ejected.

Counter GO-TO function

Use the linear time counter to conveniently search for positions a designated number of minutes before or after the present position.



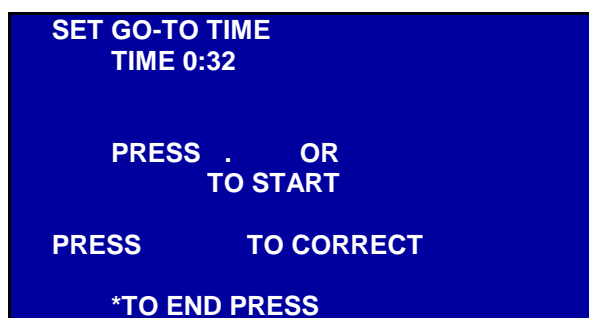
1. Press GO-TO/INDEX button during stop mode. The "MENU", as illustrated, appears on TV screen.

SET GO-TO TIME
TIME --:--

INDEX
PRESS . OR
TO START
SCAN AND PLAY

***TO END PRESS**

2. Select the required number of minutes by pressing "0" - "9" buttons. Press "0" "3" "2", for example, to search for the scene 32 minutes before or after the present position.



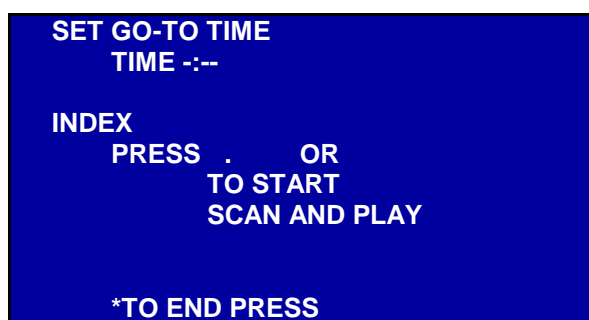
3. Press the REW button to search the scene 32 minutes before the present position or the F.FWD button to search the scene 32 minutes after it. The tape is rewound or fast forwarded to the position 32 minutes before or after, and then playback starts.

Tape indexing

The indexing system used in your VCR is based on a new VHS Standard Indexing System called "VISS" (VHS Index Search System). It allows you to directly access specific program segments. The new system used in your VCR will not recognize index marks on tapes made on older VCR's. Likewise, older VCR's cannot recognize the "VISS" index marks. The INDEX "mark" is recorded automatically every time the REC button is pressed.

Note: Normally, an index "mark" is not recorded if PAUSE is pressed and released during recording. You must press the REC button. If you are recording two programs - one immediately following the other - you must press STOP and then REC to insert an index "mark".

1. Press the GO-TO/INDEX button once during the stop mode.
The index menu appears on the TV screen.

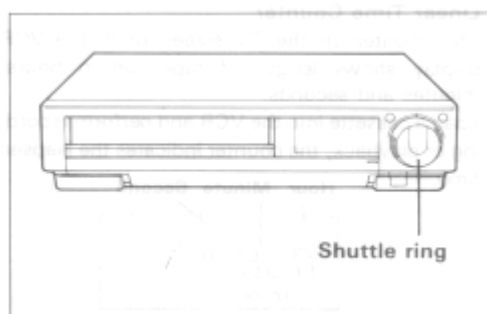


2. Press the REW or F.FWD button. The tape will rewind or fast forward until an index signal is detected.
3. When the VCR locates an index mark, it will stop and play approximately 15 seconds of the program following the mark. This is long enough for you to recognize the program.
4. The VCR will continue to locate index marks in either direction and play 15 seconds of the program following it until you press GO-TO/INDEX.
5. When you see the program you want to watch, press PLAY.

PLAYBACK USING SHUTTLE RING

PLAYBACK USING SHUTTLE RING

Use the shuttle ring allows many different kinds of playback; slow-motion play, normal play, double-speed play, forward search, reverse slow-motion play, reverse play, reverse double-speed play and reverse search.

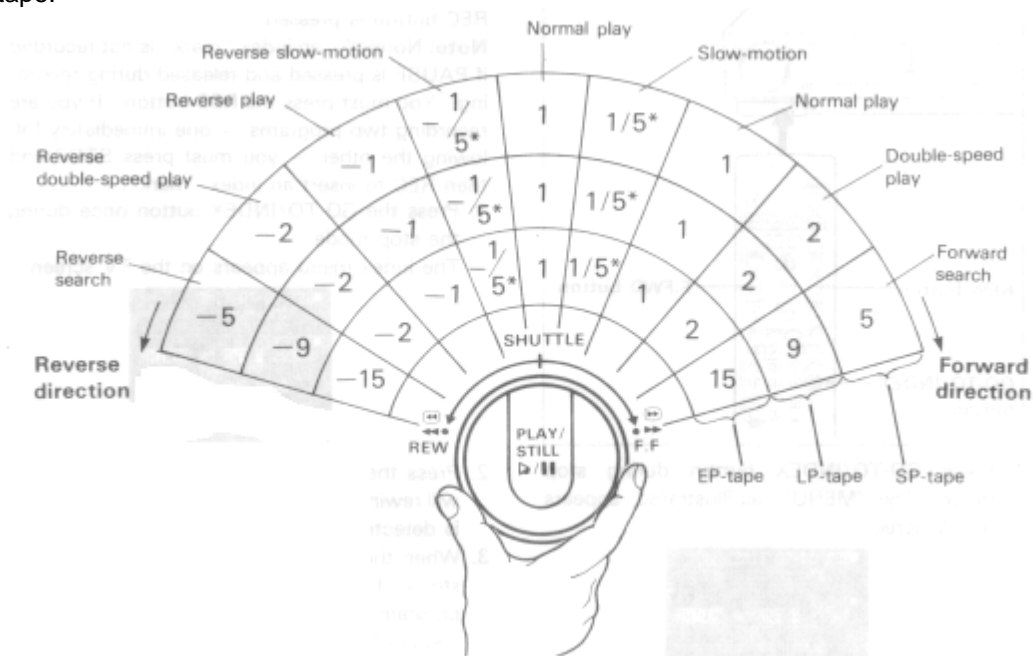


Note: If the shuttle ring is operated in the stop mode, the VCR enters the fast forward or rewind mode.

How to use the shuttle ring

If the shuttle ring is turned during playback, turning the ring to the positions indicated gives those special effects.



- Release the hand from the shuttle ring for normal play.
- Press the PLAY/STILL button on the shuttle ring during normal play: the VCR enters the still playback. Press it again to return to normal play.
- If the shuttle ring is operated during still play and is then released, the VCR reenters the still play mode. If the VCR is left for more than one minute after still play is restored from reverse play, reverse double-speed play or reverse search, the VCR will enter the stop mode automatically to prevent damage to the tape.



VCR Plus + FEATURE

- Numbers indicate tape speeds with normal play as 1.
- * The slow-motion or reverse slow-motion speed responds to the extent to which the slow speed buttons on the remote control are adjusted.

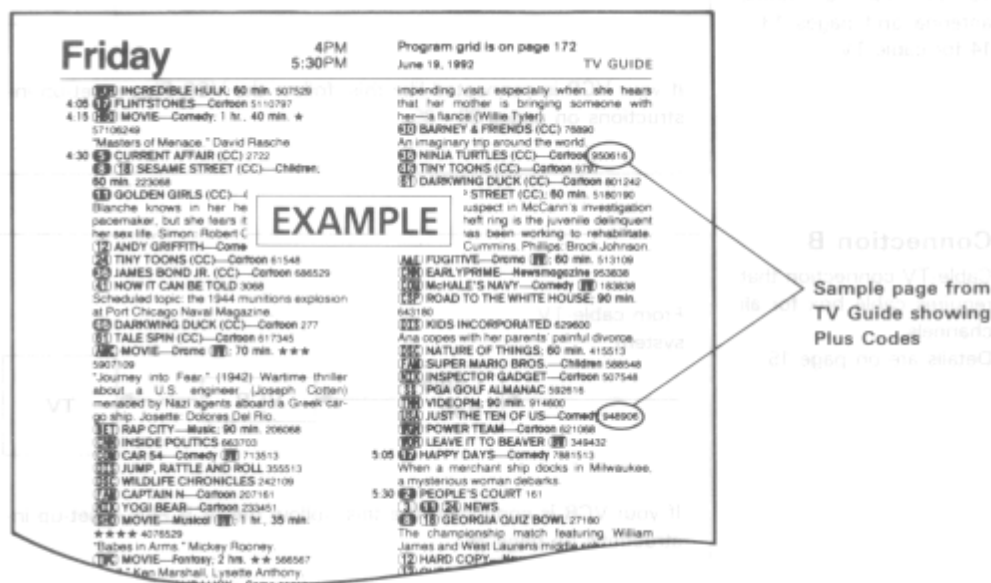
NOTES:

- The picture may have noise, streaking or other distortion when it changes.
- If noise bars appear on TV screen during slow/still mode, first set the VCR to slow mode and then press TRACKING control button ( or ) to minimize noise bars. Now the noise bars in still mode are eliminated automatically.

VCR Plus + FEATURE

The VCR Plus+* feature will allow you to program the VCR for timed recording by simply entering a Plus Code* number.

The up-to-8 digit Plus Codes are published in the TV listings in many newspapers, TV Guide and the local cable-TV guides. The Plus Code numbers provide the VCR with all the information it needs for timer recording, so there is no need to program date, recording start time, stop time or channel number.



Channel Set-up

Before using the VCR Plus+ feature, you need to assign the local channels in your area to the VCR Plus+ channels stored in VCR memory. This is called channel set-up. Channel set-up is necessary because broadcast and cable-TV stations use different TV channels in different areas. If you enter a Plus Code number to record a channel that is different from the VCR Plus+ channel without performing the set-up operation, your VCR will record the wrong program.

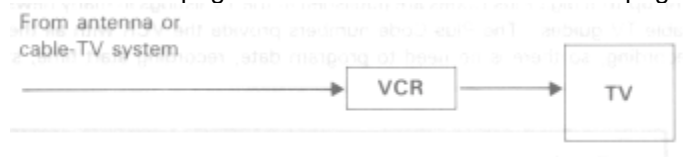
There are three channel set-up methods depending on your TV hook up home antenna, cable-TV or cable box. See connections A, B and C on the next page to find out which suits you and read the corresponding instructions carefully.

VCR Plus + FEATURE

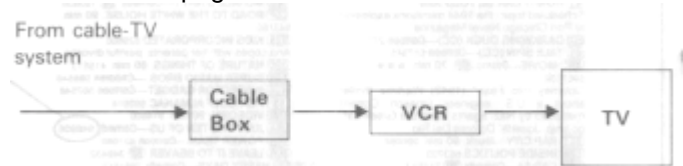
* VCR Plus+ and Plus Code are trademarks of Gemstar Development Corporation.

Connection A

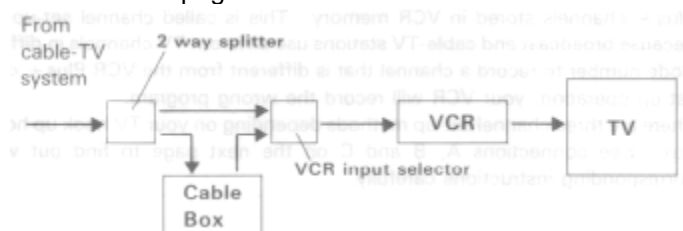
Direct connection from either home antenna or cable-TV that does not require a cable box. Details are on pages 10-11 for a home antenna and pages 13-14 for cable-TV.

**Connection B**

Cable-TV connection that requires cable box for all channels. Details are on page 15.

**Connection C**

Cable-TV connection that requires cable box for some preview channels only. Details are on pages 15-17.



Channel set-up using a home antenna

If you have a home antenna connected to your VCR, refer to the TV listings in your local newspaper, etc. to make sure your broadcast channels match the VCR Plus+ channels. If all broadcast channels coincide with the VCR Plus+ channels, no channel set-up is necessary.

[Example]

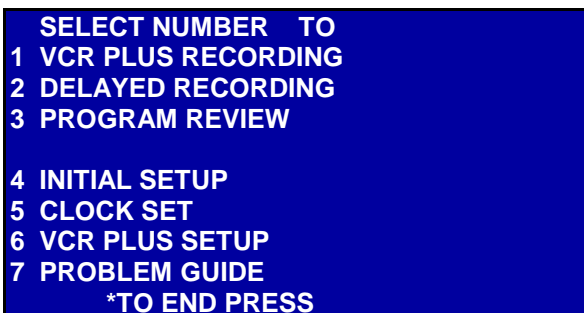
If WCFC (Ind.) is received on channel 38 and its VCR Plus+ channel is 03.

Channel list

32	WFLD (Fox)	32
38	WCFC (Ind.)	03

Broadcast channel VCR Plus+ channel

1. Make sure the channels are correctly tuned as shown on pages 20 and 21.
2. Press the GUIDE button to display the menu, as illustrated, on the TV screen.

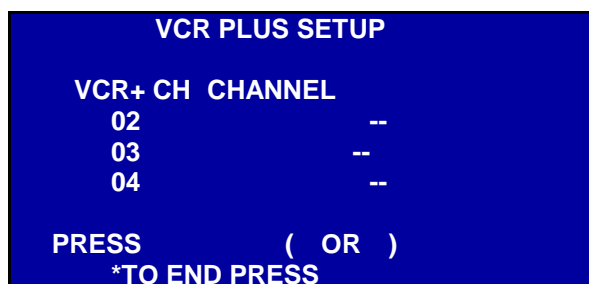


3. Press button "6" for VCR PLUS SETUP.

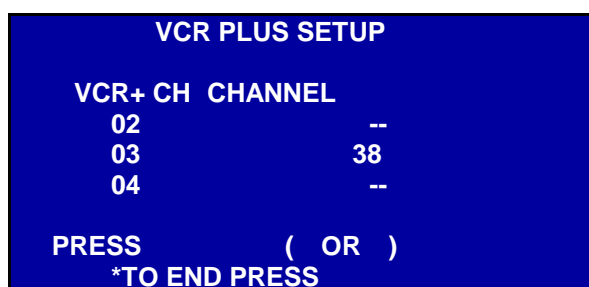


Note: If the VCR Plus+ channel matches your local broadcast channel, leave the column as "--" without entering a channel number, as in the example for WFLD (Fox).

4. Press the CHANNEL select button so the arrow points to the CHANNEL column next to WCFC (Ind.) VCR Plus+ channel 3.



5. Press "3", then "8".



Notes:

- If you enter a wrong number, first press the CLEAR button, then enter the correct number.
- Repeat steps 4 and 5 to assign all local broadcast channels to the VCR Plus+ channels as required.

6. Press the GUIDE button.

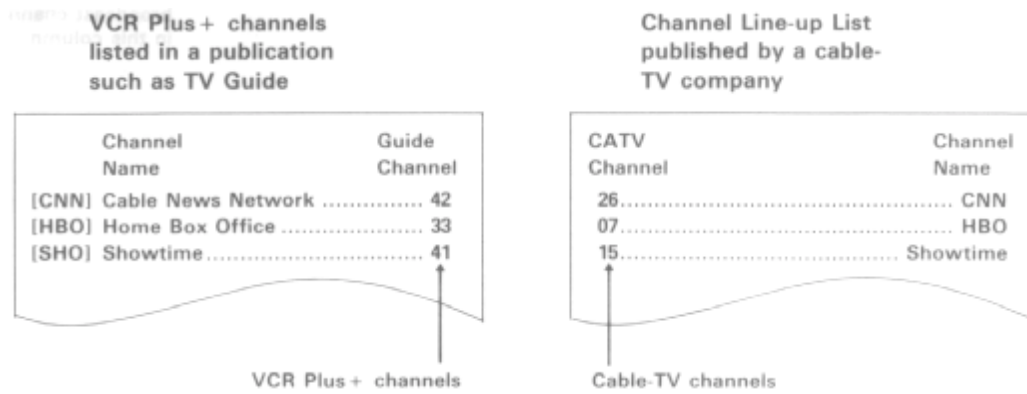
The channel set-up operation is now complete and the original menu is on the TV screen.

Channel set-up when using a cable-TV

If cable-TV is connected to your VCR, assign the cable-TV channels to the VCR Plus+ channels listed in a publication such as TV Guide. The cable-TV channels are listed in the channel line-up chart published by the cable-TV company.

[Example]

To assign CNN (Cable News Network) to a VCR Plus+ channel using the two channel lists below.



1. Make sure the channels are correctly tuned as shown on pages 20 and 21.

2. Press the GUIDE button to display the menu, as illustrated, on the TV screen.

SELECT NUMBER TO
 1 VCR PLUS RECORDING
 2 DELAYED RECORDING
 3 PROGRAM REVIEW

 4 INITIAL SETUP
 5 CLOCK SET
 6 VCR PLUS SETUP
 7 PROBLEM GUIDE
 *TO END PRESS

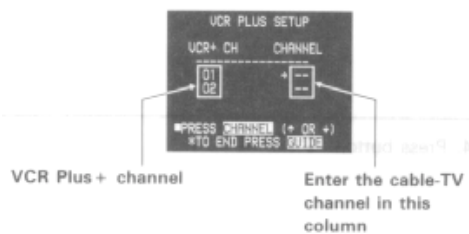
3. Press button "6" for VCR PLUS SETUP.

IS A CABLE BOX BEING
 USED WITH THE VCR
 FOR ALL CHANNELS?

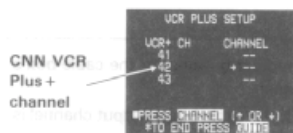
1 NO
 2 YES

*TO END PRESS

4. Press button "1".



5. Press the CHANNEL select button so the arrow points to the CHANNEL column next to CNN VCR Plus+ channel 42.



6. Press "2", then "6".



VCR Plus+ SET UP FOR CONNECTION B

Notes:

- If you enter a wrong number, press the CLEAR button, then enter the correct number.
- Repeat steps 4 and 5 to assign all cable-TV channels to the VCR Plus+ channels as required.

7. Press the GUIDE button.

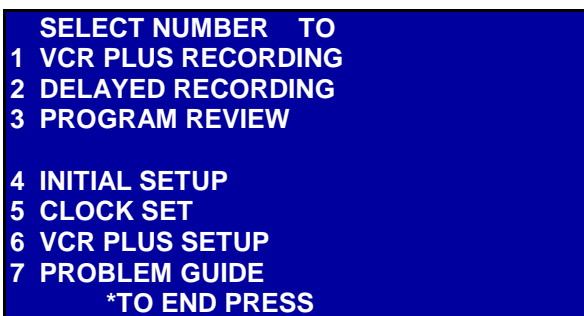
Channel set-up operation is now complete and the original menu is on the TV screen.

VCR Plus+ SET UP FOR CONNECTION B

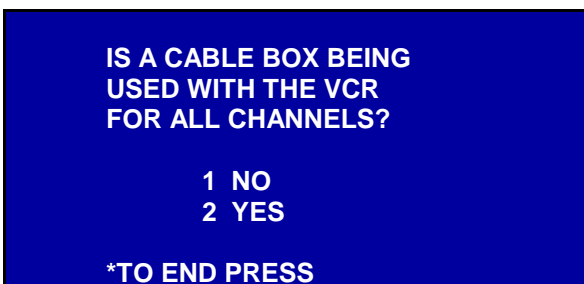
If you are receiving all channels through cable box, perform the following procedure.

1. Make sure the channels are correctly tuned as shown on pages 20 and 21.

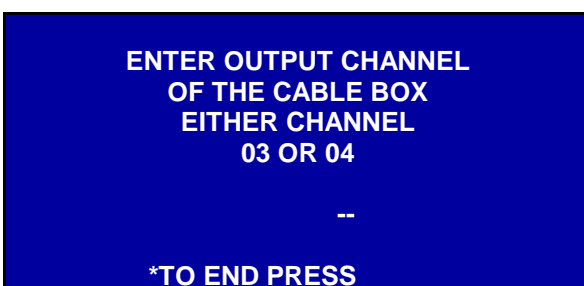
2. Press the GUIDE button to display the menu, as illustrated, on the TV screen.



3. Press button "6" for VCR PLUS SETUP.



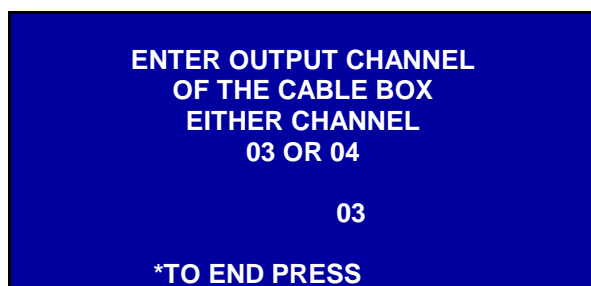
4. Press button "2".



5. Press two number buttons for the cable box's output channel.

Example: If the cable box's output channel is "03":

VCR Plus+ SET UP FOR CONNECTION C



Note: If the cable box's output channel is 02, 05 or 06, press the number buttons to select the channel.

6. Press the GUIDE button to return to the original menu.

VCR Plus+ SET UP FOR CONNECTION C

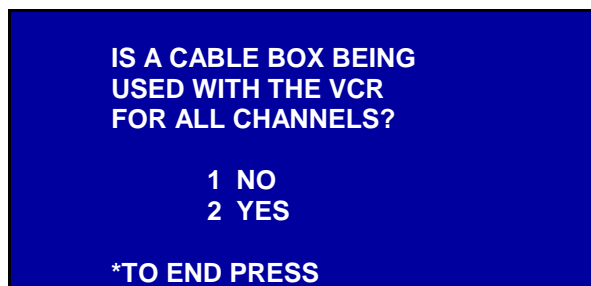
If you use the cable box to receive only scrambled channels, first perform the same channel set-up operation for Connection A, shown on page 33. This channel set-up operation allows you to by-pass the cable box for channel reception.

To receive the scrambled channels through the cable box, use the cable box's output channel.

Example: If the VCR Plus+ channel for HBO Home Box Office is 33 and the cable box's output channel is 03.

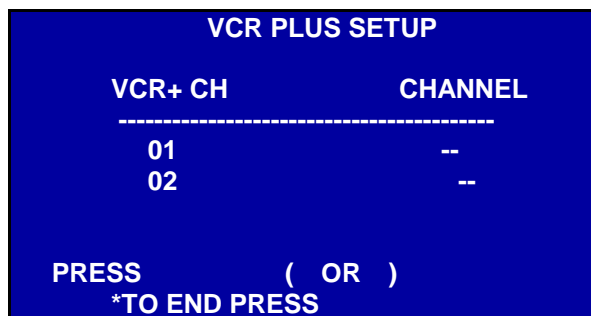
1. Press the GUIDE button to display the menu on the TV screen.

2. Press button "6" for VCR PLUS SETUP.



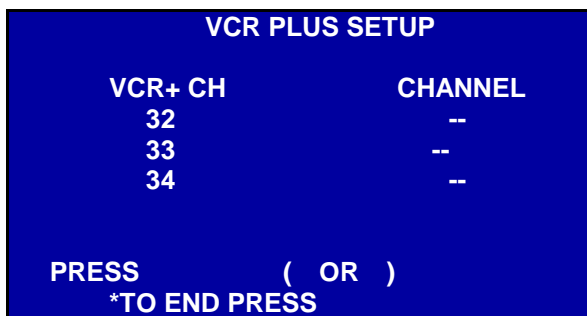
3. Press button "1".

- Select "NO" because you do not receive all channels through the cable box.



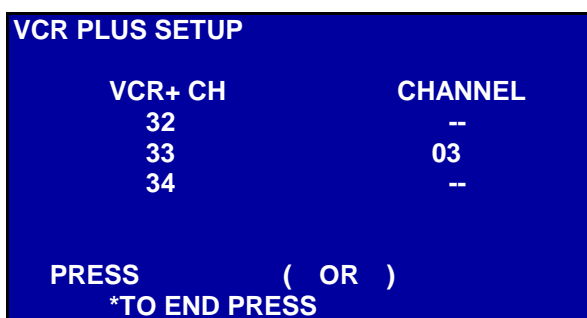
4. Press the CHANNEL select button so the arrow points to the CHANNEL column next to HBO VCR Plus+ channel 33.

VCR Plus+ SET UP FOR CONNECTION C



5. Press "0", then "3".

- Enter the cable box's output channel.



Notes:

- If you enter a wrong number, press the CLEAR button, then enter the correct number.
- If you have other scrambled VCR Plus+ channels, repeat steps 4 and 5.

6. Press the GUIDE button to return to the original menu.

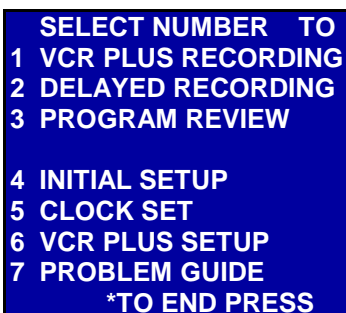
Now, you can receive both scrambled and ordinary channels. However, the VCR input selector should be set correctly.

VCR Plus+ RECORDING

Correctly perform VCR Plus+ set-up, referring to pages 31 and 32 before programming your VCR for a VCR Plus+ recording.

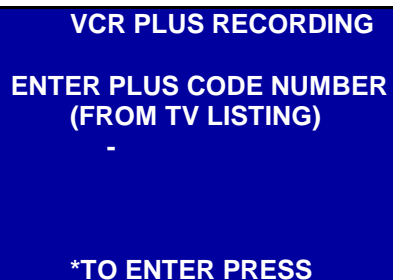
1. Insert a cassette with erase prevention tab in place.

2. Press the GUIDE button to display the menu on the TV screen.




A blue rectangular screen with white text. The text is a menu with the following items: 'SELECT NUMBER TO' at the top, followed by a list of numbers 1 through 7, each followed by a function name: '1 VCR PLUS RECORDING', '2 DELAYED RECORDING', '3 PROGRAM REVIEW', '4 INITIAL SETUP', '5 CLOCK SET', '6 VCR PLUS SETUP', and '7 PROBLEM GUIDE'. At the bottom, it says '*TO END PRESS'.

3. Press button "1" for VCR PLUS RECORDING.



A blue rectangular screen with white text. The text reads: 'VCR PLUS RECORDING' at the top, followed by 'ENTER PLUS CODE NUMBER (FROM TV LISTING)' and a single hyphen '-' below it. At the bottom, it says '*TO ENTER PRESS'.

4. Find the Plus Code number of the program you want to record from the TV listings in your local newspaper or TV Guide. Press the number buttons to enter the Plus Code number.

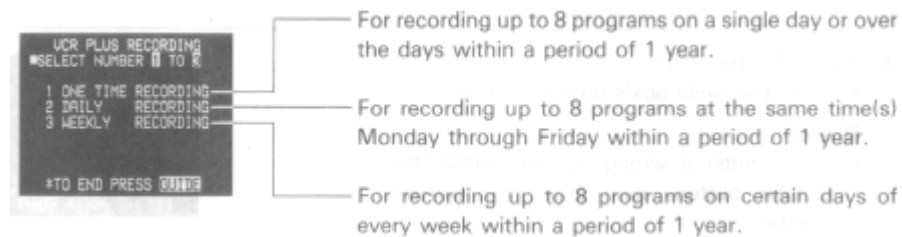


A blue rectangular screen with white text. The text reads: 'VCR PLUS RECORDING' at the top, followed by 'ENTER PLUS CODE NUMBER (FROM TV LISTING)' and the number '67469091' below it. At the bottom, it says '*TO ENTER PRESS'.

VCR Plus+ RECORDING

Note: If you enter a wrong number, press the CLEAR button, then re-enter the correct number.

5. Press the GUIDE button to store the Plus Code number in VCR memory.



Notes:

- If you enter a non-existing Plus Code number, an error message appears on the TV screen. After about 10 seconds, the TV screen returns to the display in step 3. Re-enter the correct Plus Code number.
- This VCR does not accept a Plus Code number starting from 0.

6. Press one button "1" - "3" to select the program mode.



- The screen displays the information on timer recording programmed by the Plus Code number you have entered.
- To change the recording speed, press the TAPE SPEED button.

Notes:

Programming is not complete unless program mode is selected.

Check to make sure the timer is programmed correctly. If not, press the CLEAR button, then re-program from step 3 above.

To record a program broadcast on Saturday or Sunday, do not select "2. DAILY RECORDING".

7. Check to make sure the timer is programmed correctly, then press the GUIDE button.

8. Turn VCR power off.

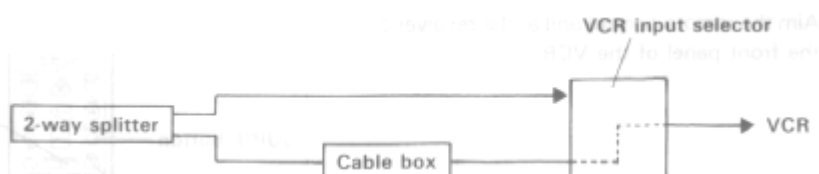
Recording starts automatically at the recording start time.

Notes:

- To record channels received through cable box, select the cable box's output channel correctly.
- To review or clear programmed timer recordings, see pages 42 and 43.
- To stop a timer recording in progress, press the power button and then, within 10 seconds, press the STOP button.

To connect the VCR as shown in Connection C on page 37, make sure the VCR input selector is set correctly.

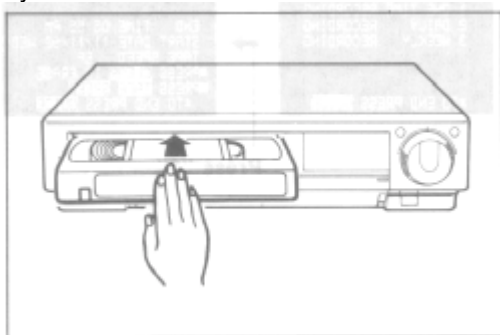
Example: To record channels received through cable box, make sure the selector is switched for the cable box.



TIMER RECORDING

TIMER RECORDING


The programmable electronic clock/timer permits the unattended recording of up to 8 preselected programs, including one program on the same day of each week or one program at the same time every day.



1. Insert the Cassette.
2. Press the SPEED button to select "SP" or "EP".
3. Set the program timer.
"START (ON) TIME", "STOP (OFF) TIME", "DAY" etc. See below.
4. Turn power off. Now recording will begin automatically at the start time.

Notes:

It is not necessary to press REC button.

The TIMER indicator  flashes to warn that recording will not occur because cassette has not been inserted. If the safety tab on the cassette has been removed, the VCR will automatically eject the cassette when placed in the Timer mode.

Programming the timer for unattended recording

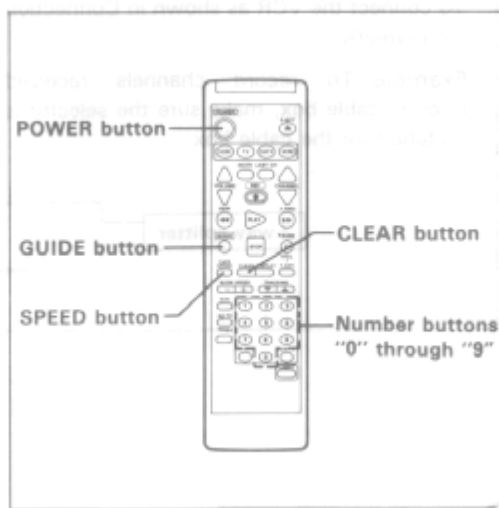
For unattended recording the timer needs to know what day to make the recording, the time to start, the time to stop, and the channel to be recorded.

Things to know before starting

- While you are programming the timer, the "menu" display on the TV screen will prompt you through the procedures.
- You can correct an error in the program any time before the last step by pressing CLEAR button repeatedly until the digit to be corrected becomes flashing and then enter the correct digit.
- The programming will automatically resume the "original menu" if no further steps are followed in programming for about 1 minute.

1. Turn on the power of both VCR and TV.
2. Be sure that the TV is set to the video channel (channel 3 or 4).
3. Aim the remote control unit at the receiver on the front panel of the VCR.

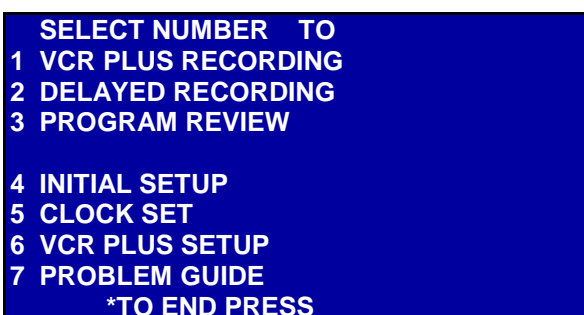
TIMER RECORDING



TIMER RECORDING (cont.)

pg. 41

4. Press the GUIDE button until the "menu", as illustrated, appears on the TV.



5. Press button "2" to set the program.



- for recording up to 8 programs on a single day or over the days within a period of 1 year.
- for recording up to 8 programs at the same time(s) Monday through Friday within a period of 1 year.
- for recording up to 8 programs on certain days of every week within a period of 1 year.

Note: Any one of these program modes or any combination thereof (up to 8 programs in total) may be selected. A typical example of a "One Time" program is demonstrated below.

6. Press button "1". The display will prompt you to select the channel to be recorded.

PROGRAM 1 <ONE TIME>
CH --

TIMER RECORDING

```
START TIME --:--  
  
END TIME --:--  
START DATE --/--/--  
TAPE SPEED EP  
FILL IN BLINKING SPACE  
PRESS      TO CORRECT  
*TO END PRESS
```

7. Press two digits for the channel to be recorded (for example, "0" "4" for channel 4).

```
PROGRAM 1 <ONE TIME>  
CH 04  
START TIME --:--  
  
END TIME --:--  
START DATE --/--/--  
TAPE SPEED EP  
FILL IN BLINKING SPACE  
PRESS      TO CORRECT  
*TO END PRESS
```

Notes:

- If you want to select channel 124 for example, press "100", "2", "4" in this order.
- Press the AVX button when recording a picture from external equipment. "L1" will appear in the display.

In this case, "ANTENNA/CABLE SELECTION" on page 20 should be selected "CATV1" or "CATV2".

8. Press four digits, two for the hour and two more for a minute (for example, "0" "6" "0" "0" for 6:00).

```
PROGRAM 1 <ONE TIME>  
CH 04  
START TIME 06:00  
PRESS AM: PM:  
END TIME --:--  
START DATE --/--/--  
TAPE SPEED EP  
FILL IN BLINKING SPACE  
PRESS      TO CORRECT  
*TO END PRESS
```


TIMER RECORDING

Note: Always press "0" before a single digit hour and minute.

9. Press "1" for AM or "2" for PM.

PROGRAM 1 <ONE TIME>
CH 04
START TIME 06:00 PM

END TIME --:--
START DATE --/--/--
TAPE SPEED EP
FILL IN BLINKING SPACE
PRESS TO CORRECT
*TO END PRESS

10. Press four digits, two for the hour and two more for a minute (for example, "0" "7" "3" "0" for 7:30).

```

PROGRAM 1 <ONE TIME>
      CH 04
START TIME 06:00 PM
PRESS
END TIME 07:30 PM
START DATE 12/20/92 SUN
TAPE SPEED EP
FILL IN BLINKING SPACE
PRESS      TO CORRECT
*TO END PRESS
    
```

11. Press four digits (two for the month and two for the day) (for example, "1" "2" "2" "4" for begin recording on December 24). If you want to select the recording speed, press TAPE SPEED button to select the desired speed.

```

PROGRAM 1 <ONE TIME>
      CH 04
START TIME 06:00 PM
PRESS
END TIME 07:30 PM
START DATE 12/24/92 THU
TAPE SPEED EP
FILL IN BLINKING SPACE
PRESS      TO CORRECT
*TO END PRESS
    
```

12. Press the GUIDE button to enter your program and return to the programming "menu" display. Additional programs may be entered by repeating Steps 5 through 11. If you have no further programs to enter, press the GUIDE button twice.

```

SELECT NUMBER TO
1 VCR PLUS RECORDING
2 DELAYED RECORDING
3 PROGRAM REVIEW

4 INITIAL SETUP
5 CLOCK SET
6 VCR PLUS SETUP
7 PROBLEM GUIDE
*TO END PRESS
    
```

13. Turn off VCR power.
Now recording will begin automatically at the start time.

Note: To stop a timer recording in progress with the VCR, press POWER button and then press STOP button within 10 seconds.

RECALLING THE PROGRAM

RECALLING THE PROGRAM

1. Follow Steps 1 through 4 of "Programming the timer for unattended recording" on pages 40 and 41.

SELECT NUMBER TO
1 VCR PLUS RECORDING
2 DELAYED RECORDING
3 PROGRAM REVIEW

4 INITIAL SETUP
5 CLOCK SET
6 VCR PLUS SETUP
7 PROBLEM GUIDE
*TO END PRESS

2. Press "3" button (Program Review).
3. Press "3" again if you want to review the next program information immediately.

PROGRAM 1 <ONE TIME>
CH 04
START TIME 06:00 PM

END TIME 07:30 PM
START DATE 12/24/92 THU
TAPE SPEED EP
PRESS TO ERASE
PRESS 3 FOR NEXT
*TO END PRESS

Note: If you have programmed two or more programs and does not press "3", the information on each program will automatically switch every 10 seconds.

4. When you finish reviewing the programs, press the GUIDE button two times to switch off the on-screen display.

CLEARING ("ERASING") INFORMATION FROM A PROGRAM 3

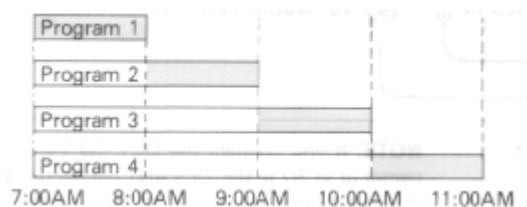
1. Follow Steps 1 through 4 of "Programming the timer for unattended recording" on pages 40 and 41.
2. Press "3" button (Program Review).
3. Press "3" again if you want to view the next program information immediately.
4. Press CLEAR button when the program information you want to clear is displayed.
5. Press the GUIDE button to switch off the on-screen display.

Note: One time program is cleared automatically when the timer recording is finished, but daily and weekly programs remain in the timer even after the timer recording is finished.

PROGRAM PRIORITY

PROGRAM PRIORITY

Example 1: When the program start time is the same among the programs on the same day, they are recorded in the order of Program 1, 2, 3 -- 8.



7:00AM - 8:00AM for Program 1

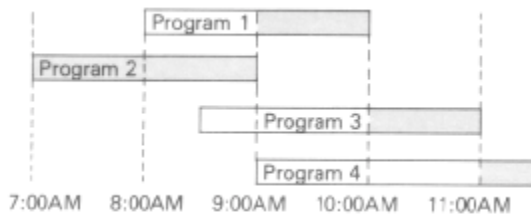
8:00AM - 9:00AM for Program 2

9:00AM - 10:00AM for Program 3

10:00AM - 11:00AM for Program 4

Program 1 is executed as programmed, and Program 2 as illustrated after Program 1, and Program 3 as illustrated after Programs 1 and 2, and Program 4 as illustrated after Programs 1, 2 and 3.

Example 2: When the programs overlap, an earlier program has priority.



7:00AM - 9:00AM for Program 2

9:00AM - 10:00AM for Program 1

10:00AM - 11:00AM for Program 3

11:00AM ~ for Program 4

Program 2 is executed as programmed, and Program 1 as illustrated after Program 2, and Program 3 as illustrated after Programs 2 and 1, and Program 4 as illustrated after Programs 2, 1 and 3.

RECORDING FROM ANOTHER VCR

RECORDING FROM ANOTHER VCR

Recording from another VCR hookup illustration

1. Connect Video Out/Audio Out of VCR1 to Video In/Audio In of VCR2.
2. Press the AVX button of VCR2 so as to have L1 (Line 1) indicator lights in the display.
3. Play the tape in VCR1 and record it with VCR2.

NOTE: If you connect the OUT TO TV connector of VCR2 to the TV's ANT connector, as illustrated and press the "VCR/TV" selector to turn the "VCR" indication on, the picture being dubbed by VCR2 can be monitored.

RECORDING FROM A VIDEO CAMERA/RECORDER

If you wish to exchange or copy some of your friend's favorite home recordings, the following instructions can be used to connect camera/recorder to VCR for this purpose.

Recording from a video camera/recorder hookup illustration

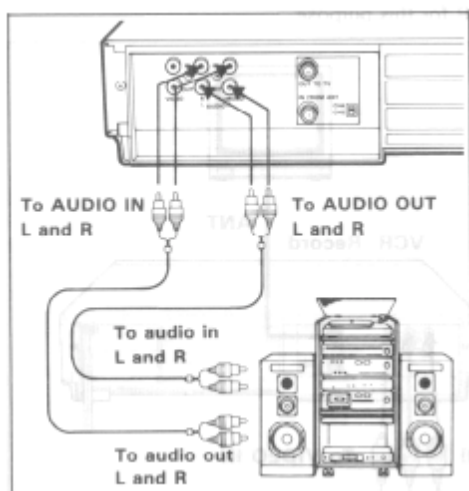
1. Connect the AV stereo output cord to AV In/Out of your camera/recorder.
2. Connect the other ends to AUDIO IN, VIDEO IN of your VCR respectively.
3. Press the AVX button on the remote control so the L1 (Line 1) indicator lights in the display

Note: If your camera/recorder has a single (mono) audio output, connect it to the AUDIO IN L/MONO input of the VCR.

4. Play the tape on the camera/recorder and record it on the VCR.

NOTE: If you connect the OUT TO TV connector of the VCR to the TV's ANT connector, as illustrated and press the VCR/TV selector of the VCR to turn the "VCR" indication on, the picture being dubbed by VCR can be monitored.

CONNECTIONS



In order to record and play stereo audio with a stereo system, the amplifier or receiver must have an unused set of tape record (L and R) jacks and tape play (L and R) jacks. Some systems have a set of tape jacks for two tape decks, other systems have jacks for only one deck. If your system has connections for only one deck, and you already have an audio deck connected, you will need to obtain an accessory for connecting multiple audio decks. Please consult your audio dealer.

If you have connections for two tape decks, your audio deck can remain connected to the tape-1 connectors, and you may connect your VCR's audio connections to the jacks for tape-2. The tape record (L and R) jacks of your amplifier should be connected to the Audio Inputs (L and R) of your VCR, and the VCR's Audio Outputs (L and R) connected to the amplifier's tape play jacks. Select the tape switch on the amplifier which matches the VCR's tape connections.

To play back in stereo

1. Connect the audio cable to the AUDIO OUT (L and R) jacks of your VCR and to the audio input jacks (left and right) of your stereo system.
2. Then follow the steps for "PLAYBACK" (page 28), turning down the sound of your TV.

Note: For operation of your stereo system, see its operation manual.

To use the unit as an audio deck

Hi-Fi sound can be enjoyed using this VCR as an audio deck when connected to an audio system.

1. Connect this VCR and the stereo system.
2. Insert a cassette.
3. Press SPEED button to select "SP" or "EP".
4. Press the AVX button to turn on the L1 (Line 1) indicator in the display.
5. Press RECORD button.
6. To stop recording, press STOP button.
7. Select "OFF" following "MOVIE RETURN" on page 22.
8. To play back, rewind tape and select "Hi-Fi" following "AUDIO PLAYBACK SELECTION" on page 23, then press PLAY.

Notes:

1. It is not required to turn the TV on.
2. Only audio is recorded and video is not recorded when no connection is made for the video in jack.

AUDIO DUBBING

Audio dubbing hookup illustration

Audio dubbing is the process of recording new audio in place of the audio that was formerly recorded on the linear audio track. Audio dubbing does not disturb the recorded video and it does not disturb the audio that was formerly recorded on the VHS Hi-Fi track. When Audio Dubbing, the source for the Audio Dubbing is "whatever you are hearing".

1. Connect the audio source to either (or both) AUDIO IN jacks. (Stereo inputs will be mixed and recorded in monaural on the linear track.)

- If a plug to be connected to is only one, connect it to the left side. AUDIO IN (L) handles the left channel stereo sound or monaural sound.

2. Press the AVX button on the remote control to select L2 (Line 2).

3. Press GUIDE button and select "AUDIO PLAYBACK [LINEAR]" following "INITIAL SETUP" on page 23.

4. Play a recorded cassette.

Be sure that the record safety tab is not missing.

5. Press PAUSE button exactly where audio dubbing is to begin.

- The VCR enters the play pause mode.

6. Press AUDIO DUB button.

7. Press PAUSE button again.

8. Press STOP button to stop audio dubbing.

After dubbing, select the type of audio for listening.

- To hear the sound that was dubbed, select "AUDIO PLAYBACK [LINEAR]" following "INITIAL SETUP" on page 23.

- To hear the dubbed sound and the sound before dubbing simultaneously, select "AUDIO PLAYBACK [MIX]" following "INITIAL SETUP" on page 23.

NOTE: If the linear timer counter is displayed in the VCR's display, the tape stops automatically at the reading of "0:00:00" and audio dubbing stops.

VIDEO DUBBING

Video dubbing hookup illustration

Video dubbing is the process of recording new video on a tape in place of existing video. It erases the former video and it also erases the audio recorded on the VHS Hi-Fi track. It does not affect the audio formerly recorded on the linear track. When Video Dubbing, the source for the Video Dub is "whatever you are seeing".

1. Connect the video camera/recorder to the VCR or connect the video generating device to the video input jack of the VCR.
2. Press the AVX button on the remote control to select L2 (Line 2).
3. Press DISPLAY button to display the counter reading in the VCR's display.
4. Play a recorded cassette. Search for the approximate position of the tape on which you want to dub a picture.
Be sure that the record safety tab is not missing.
5. Press CLEAR at the point where video dubbing ends.
 - The VCR display is "0:00:00". The tape continues to play.
6. Turn the SHUTTLE ring counterclockwise to rewind the tape
 - Rewind the tape to a point somewhere before the video dubbing start position. Then center the SHUTTLE ring.
7. Use the SHUTTLE ring to find the exact start of video dubbing, then release the SHUTTLE ring.
8. Press VIDEO DUB button.
9. Press PAUSE button to begin video dubbing. The VCR will stop automatically at counter reading "0:00:00".

EASY EDIT BY USING OPTIONAL SYNCHRO EDIT CABLE

Synchro edit makes tape copying easy by connecting two compatible VCR's with an optional synchro edit cable.

When two VCR's are connected with a synchro edit cable, the playback VCR will automatically stop and start the recording VCR.

Connection

Hookup illustration

To synchro edit the VCR's

1. Turn on the VCR's and TV.
2. Insert the cassette that you want to copy in the playback VCR. Locate the place on the tape you want to begin copying and put the VCR in the play-pause mode.
3. Insert a cassette with the record-protect (safety) tab intact in the recording VCR. Put the recording VCR in the record-pause mode.

PROGRAM EASY EDIT

Note: Make sure the recording VCR is in the line mode.

4. Press the PAUSE button on the playback VCR to start copying the tape. Both VCR's will start together.
5. Press the PAUSE button again when you want to stop copying the tape. Both VCR's will enter the pause mode.

Note: If the next segment you want to copy is located farther away on the tape, use the F.FWD (fast forward), REWIND, or PLAY button on the playback VCR to locate the place on the tape you want to begin copying again. Then place the playback VCR in the play-pause mode. Press the PAUSE button again and both VCR's will begin copying.

6. Press the STOP buttons on both VCR's when you are finished.

PROGRAM EASY EDIT

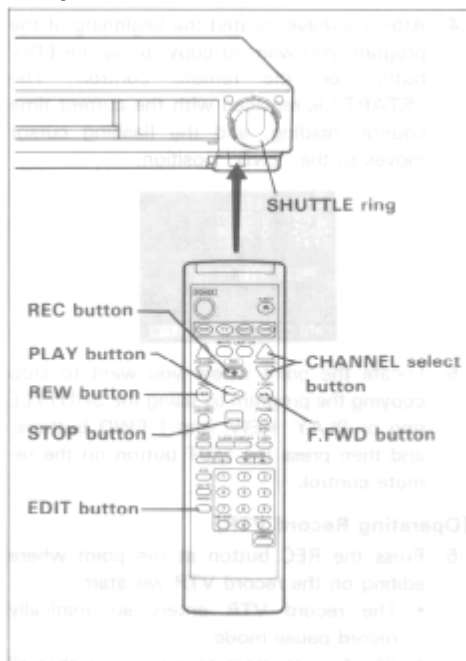
If the part to be edited has been programmed, the playback VCR automatically controls the record VCR for editing.

Connection

Hookup illustration

Cautions:

- When connecting cables, turn the power off on all units.
- When only one TV set is used, connect it to the record VCR.
- Set the remote control code of the playback VCR (this VCR) to [VCR1] for program easy editing (refer to page 22). If the record timing drifts with the [VCR1] setting, set it to [VCR2].

Preparations

- Connect playback VCR (this VCR) to record VCR and TV. See page 50.
- Prepare the playback VCR (this VCR) as follows.
 - Insert recorded cassette.
 - Play tape a little to adjust tracking.
- Prepare the record VCR as follows.
 - Insert a cassette with record prevention tab in place.
 - Press the AVX select button to select the external input (LINE).
- Turn TV power on. Select channel for VCR use.

[Operating Playback VTR (this VTR)]

1. Aim the remote control at the receiver on the front panel of the VCR.
 2. Press EDIT button
- The display below appears on the TV screen.

SYNCHRO EDIT
START 0:05:20

PRESS TO SET

***TO END PRESS**

The "START" flashes prompting you to select the start of the program you want to copy.

3. Locate the beginning of the program you want to copy with the SHUTTLE ring or PLAY, REW, F.FWD button.

4. After you have located the beginning of the program you want to copy, press the EDIT button on the remote control. The "START" is replaced with the current time counter reading, and the flashing cursor moves to the "END" position.



5. Locate the point where you want to stop copying the program by using the SHUTTLE ring or PLAY, REW, and F.FWD buttons, and then press the EDIT button on the remote control.

[Operating Record VTR]

6. Press the REC button at the point where editing on the record VTR will start.

- The record VTR enters automatically record pause mode.
- Check once more to make sure that all preparations for recording on the record VTR are complete.

[Operating Playback VTR (this VTR)]

7. Press the EDIT button on the remote control. The program menu will disappear from the screen, and the VCR will automatically search for the beginning of the program and start copying.

Display during easy editing



- The play VTR starts play 10 seconds in front of the programmed start point. "EXECUTE" flashes on and off for a few seconds before start and then it goes out.

Cautions during program easy editing

- When editing starts, the playback VCR starts playing at a point slightly before the start of the program. This is why something should always be recorded about 30 seconds before the start point. (No signals have to be input, all that is needed is to press the REC button.)
- Editing may operate incorrectly if there is an unrecorded section between the start point and a point about 30 seconds in front of it, or if the recording speed switches.
- Some VCR models for recording will stop if they are left in record pause mode for five minutes. Do not hold a VCR in record pause for five minutes.

To correct the program

Correct it by the following steps.

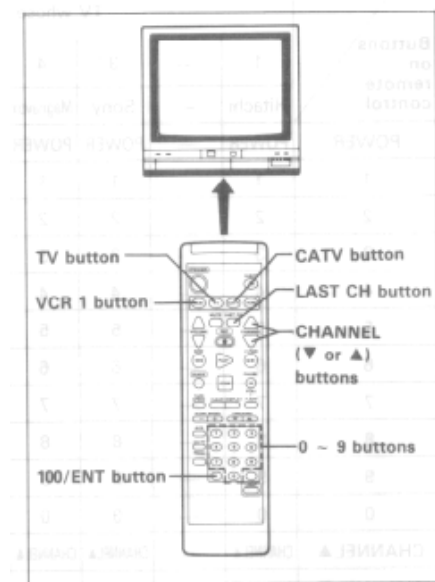
1. Press CLEAR button.
2. Correct programme contents.

HOW TO OPERATE YOUR TV OR CABLE CONVERTER BY USING THE REMOTE CONTROL UNIT

- To correct the end point, for example, reprogram the end point using the procedures in step 5 on page 52.

HOW TO OPERATE YOUR TV OR CABLE CONVERTER BY USING THE REMOTE CONTROL UNIT

This remote control unit is designed to operate 13 different types of TV's and 7 different types of cable converters. You must first program the remote control unit to match the remote system in your TV or cable converter.



Programming the remote control for TV set

1. Install the batteries in the remote control unit.
2. Turn on your TV.
3. Point remote control unit toward front of your TV.
4. While holding TV button down, press 0 through 9, CHANNEL (▲), (▼), 100/ENT and LAST CH button (one at a time). The TV will change channels when the matching number button is pressed.
5. Release both buttons when the TV starts changing channels. The other remote buttons shown on next page will now control your TV.

Programming the Remote Control for Cable Converter

1. Install the batteries in the remote control unit.
2. Turn on your Cable Converter.
3. Point the remote control unit toward front of your Cable Converter.
4. While holding CATV button down, press 1 through 8 button (one at a time). The Cable Converter will change channels when the matching number button is pressed.
5. Release both buttons when the Cable Converter starts changing channels. The other remote buttons shown on next page will now control your Cable Converter.

Notes:

- If your TV or Cable Converter does not respond to any of the above procedures, the TV or Cable Converter cannot be controlled by this remote control unit.
- You will only have to program your remote control to match your TV or Cable Converter once. It will remember what codes match your TV or Cable Converter until you replace the batteries.
- Whenever you install or replace the batteries in the remote control, you must program the remote control to

HOW TO OPERATE YOUR TV OR CABLE CONVERTER BY USING THE REMOTE CONTROL UNIT

match the remote system in your TV or Cable Converter.

- When operating the TV or Cable Converter, first press the TV or CATV button, and then press the button which corresponds to the TV or Cable Converter function you want.

- When you want to operate the VCR with this remote control after operating the TV, first press the VCR1 button and then press the button which corresponds to the VC function you want.

Click to see original chart in manual

<u>Types of TV</u>	<u>Press TV and...</u>
Hitachi	1
Sony	3
Magnavox	4
Sanyo	5
Gold Star 1	6
Toshiba	7
Gold Star 2	8
NEC	9
RCA	0
Panasonic	CHANNEL ▲
Mitsubishi	CHANNEL ▼
JVC	100/ENT
Sharp	LAST CH

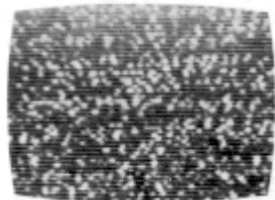
Click to see original chart in manual

<u>Types of Cable Converter</u>	<u>Press CATV and...</u>
Jerrold 1	1
Jerrold 2	2
Jerrold 3	3
Hamlin	4
Scientific Atlanta	6
Pioneer	7
Philips	8

HEAD CLEANING

HEAD CLEANING

- Picture playback may become blurred or be interrupted while the TV program received is clear. This does not mean that the recorded program has been erased. (See figure below.)



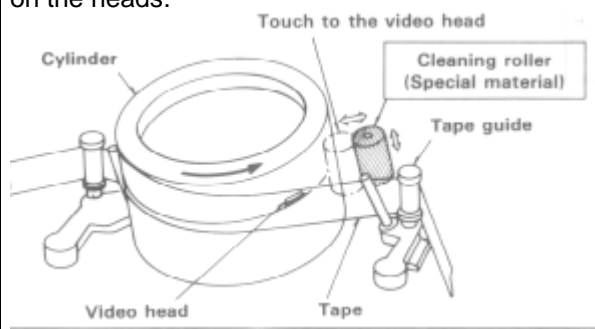
Example of playback with dirty video heads

- Dirt accumulated on the head after long periods of use causes this problem. Since this VCR uses an auto head cleaning system, dirt does not often adhere to the heads. When it is difficult to remove dirt using the system, head cleaning required highly technical care is necessary.
- Video heads rotate rapidly and are easily damaged if they contact objects other than video tape. Under most conditions, they tend to be self cleaning due to contact with the tape. If the video heads become dirty, the picture will become snowy. Only when the picture becomes snowy and the tracking control has no effect, should the heads be cleaned.

Head Cleaning Cassettes are available in the marketplace for customer use, but the quality and effectiveness of these Cleaning Cassettes ranges from satisfactory to poor. Some cleaning cassettes increase head wear or cause damage to the video heads. Others may become stuck in the machine. We recommend that head cleaning be performed only by qualified video recorder technicians. Head cleaning or malfunctions caused by head cleaning is not covered by the Limited Warranty.

Auto Head Cleaning System

This system cleans the video heads automatically when a cassette is inserted, ejected, fast forwarded or rewound or the power is turned on or off while a cassette is in the VCR, to prevent dirt from accumulating on the heads.



NOTE: Mechanical sound is heard during head cleaning

PERIODIC MAINTENANCE

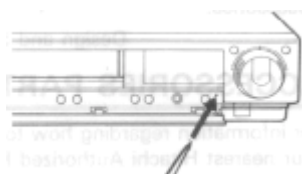
PERIODIC MAINTENANCE

The VCR is a precision electromechanical device which will require periodic maintenance after a period of normal use. We expect that no maintenance other than head cleaning will be required during the warranty period by most users, unless the VCR is heavily used or seldom used. Normal maintenance is the responsibility of the user, although defective parts are covered during the warranty period. Consult your VCR Service Center to determine recommendations for normal maintenance based on your location, use patterns and machine age.

PROBLEM GUIDE

PROBLEM GUIDE

PROBLEM	THINGS TO CHECK	SOLUTION
No power.	Is power cord connected?	Connect power cord to AC outlet.
Timer recording is not possible.	Is the program timer set correctly?	Set the program timer correctly.
	Is the POWER switch set to OFF?	Set the POWER switch to OFF.
	Is the record safety tab missing?	Place cellophane tape over missing safety tab?
REC mode cannot be engaged.	Is the record safety tab missing?	Place cellophane tape over missing safety tab.
Picture is poor on playback.	Is the TV channel selector on the proper channel?	On playback, the TV channel selector should be on channel 3 or 4
	Is the TV fine tuning set correctly?	Fine tune your TV.
No picture on playback.	Is the TV set to the proper channel?	Set the correct channel, CH3 or 4 (for your video channel.)
Playback picture is partially noisy.	Is the TRACKING adjusted correctly?	Press either TRACKING control button (▲ or ▼) for best picture.
TV program cannot be recorded or cannot be seen.	Is connection correct?	Connect correctly.
TV cannot be operated.	---	First press the TV button and then press the button, which corresponds to the TV function you want.
The indication of the VCR's display appears abnormal or no button can be engaged.		Push the reset switch using a toothpick, etc. The display will be reset. Then set the information again.



PROBLEM GUIDE

NOTE: Mechanical sound is slightly heard when the stop mode (with a cassette loaded in the VCR) continues for more than 5 minutes. This does not indicate a fault. This means that the tape protection mechanism in the VCR is operating.

SPECIFICATIONS

SPECIFICATIONS



Recording:	Rotary two head Helical Scan Azimuth Recording
Video:	NTSC Color EIA Standard
Cassette:	VHS Type
Heads:	4 video heads 2 for SP, 2 for EP, 1 Flying erase head 2 Hi-Fi audio heads 1 Full track audio/video erase head 1 Combination head for control track, audio erase and record/play (3 heads/single housing)
Tape Speed:	33.35mm / sec (SP), 16.67mm / sec (LP)(playback only), 11.12mm / sec (EP)
Tape Width:	12.7 mm
RF Output:	Channel 3 or Channel 4
RF Input:	UHF/VHF 75 ohm
Tuning Range:	VHF LOW CH, 2 - 6 (54MHz - 88MHz) VHF MID CH, A-5 - A-1 and A-I (90MHz - 174MHz) CATV VHF HIGH CH, 7 - 13 (174MHz - 216MHz) VHF SUPER CH, J - W (216MHz - 300MHz) CATV VHF HYPER CH, W+1 - W+28 (300MHz - 468MHz) CATV UHF CH, 14 - 69, W+29 - W+84 (470MHz - 806MHz)
Video Input:	1-2 Vp-p 75ohm unbalanced
Video Output:	1 Vp-p 75ohm unbalanced
Audio Input	316mV rms (-7.8dB) 50 kohm
Audio Output	316mV rms (-7.8dB) 1.5 kohm
Video Recording S/N:	Better than 45dB (SP), better than 40dB (EP)
Horizontal Resolution:	240 lines (SP), 220 lines (LP)(playback only), 230 lines (EP)
Audio Response:	50Hz - 10kHz (SP), 100Hz - 6kHz (EP)
Audio S/N:	Better than 43dB (SP), better than 40dB (EP)
Hi-Fi Audio:	
Frequency Range:	20 Hz to 20 kHz
Dynamic Range:	90 dB
Wow and Flutter:	Less than 0.005% WRMS
Power Input:	AC120V 60Hz
Power Consumption:	28W nominal
Cabinet Size:	14-15/16" (W) x 3-1/4" (H) x 13-1/8" (D) 38.0cm (W) x 8.2cm (H) x 33.4cm (D)
Weight:	11.7 lbs. (5.3 kg)
Accessories:	1 - Coaxial cable, 1 - Remote control unit, 2 - Batteries 1 remote control unit (Part No. 5616491), 2 AA batteries

Design and specifications subject to change without notice.

ACCESSORIES PARTS NUMBERS (For U.S.A. only)

ACCESSORIES PARTS NUMBERS (For U.S.A. only)

For information about how to obtain these accessories, please call TOLL FREE **1-800-448-2244** for your nearest Hitachi Authorized Parts Distributor in the continental United States. For ALASKA and HAWAII, please contact the nearest Hitachi Regional office.

Coaxial Cable	Remote Control Unit
Part No. 5861141	Part No. 5616202
	

¹Warranty: 90 days labor, 2 years parts.

Memory backup: 30 minutes